

State of California
The Resources Agency
Department of Water Resources
Division of Environmental Services
Site Assessment Section
1725 23rd Street, Suite 220
Sacramento, California 95816

PHASE II ENVIRONMENTAL SITE ASSESSMENT

IN-DELTA STORAGE PROJECT CONTRA COSTA & SAN JOAQUIN COUNTIES, CALIFORNIA MAY 2003





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FOREWORD

The Department of Water Resources' Site Assessment Section conducted a Phase II Environmental Site Assessment for CALFED's In-Delta Storage Project ("Project"). The proposed project site ("Site") consists of the following properties located in the Sacramento/San Joaquin Delta: Bacon Island, Bouldin Island, Holland Tract, and Webb Tract. This assessment is part of a comprehensive State feasibility study for CALFED's In-Delta Storage Program ("Program").

The purpose of this Phase II ESA is to evaluate the nature and extent of suspected hazardous substance contamination as identified in the modified Phase I ESA for the Site dated December 2001. This Phase II ESA was performed in accordance with standards prescribed in American Society for Testing and Materials Designation E 1903-97 and DWR guidelines. This study was requested and authorized by Leslie Pierce of DWR's Surface Storage Investigations Branch.

The modified Phase I ESA revealed signs of potential soil contamination throughout the Site. The majority of the suspected contamination appeared to be at vehicle and farm equipment maintenance facilities located on each of the aforementioned properties. To determine the nature of contamination, soil sampling was recommended.

In September 2002, SAS staff collected a total of 77 soil samples at the Site. High levels of petroleum hydrocarbons, such as oil and grease, were detected at the vehicle and farm equipment maintenance facilities, especially in areas around or near fuel and lubricating oil tanks. Low concentrations of other potential contaminants, such as heavy metals, chlorinated pesticides, and organic solvents were also detected on each property. However, in each instance, their levels never exceeded the Total Threshold Limit Concentrations as established in Title 22 of the California Code of Regulations.

Based on the results of the Phase II ESA sampling, SAS recommends further investigation of the identified "hot spot" areas to better delineate the extent of contamination. Further investigation may include more invasive subsurface soil sampling, surface water and groundwater sampling, and environmental fate studies for each of the contaminants of concern. SAS also recommends that any contaminated soil at or near water supply well sites be removed and properly disposed of, or remediated, depending on the extent of contamination.

Lastly, SAS recommends that all measures be taken to indemnify the State from any liability associated with future hazardous substance contamination or remedial actions associated with the natural gas wells that are present throughout the Site. At this time, these gas wells and the parcels on which they are situated may not be part of the land acquisition for the Project. Such measures may include establishing baseline soil and groundwater sampling data for the properties surrounding the gas wells or inserting indemnification clauses in each of the proposed purchase agreements.



For additional information, please contact Derrick J. Adachi, Chief of DWR's Site Assessment Section, at (916) 445-6449, or James Gleim, at (916) 445-6228.

Barbara McDonnell, Chief Division of Environmental Services



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1.0 INTRODUCTION

1.1 Purpose

The purpose of this Phase II Environmental Site Assessment, as defined by American Society of Testing and Materials Designation E 1903-97, is to, "...evaluate the recognized environmental conditions identified in the Phase I ESA for the purpose of providing sufficient information regarding the nature and extent of contamination to assist in making informed business decisions about the property; and where applicable, providing the level of knowledge necessary to satisfy the innocent purchaser defense under [the Comprehensive Environmental Response, Compensation and Liability Act.]"

The ASTM designation defines *recognized environmental conditions* as, "...the presence or likely presence of any hazardous substances or petroleum products on property under conditions that indicate an existing release, a past release, or material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws."

1.2 Scope of Services

This investigation has been conducted in accordance with industry-accepted ASTM, Designation E 1903-97 for Phase II ESA's.

DWR's investigation included the following tasks:

- Positive determination of potential soil contamination identified through the Phase I ESA process
- Review of existing information
- Soil sampling and analysis
- Quality assurance/quality control procedures

1.3 Limitations

Any level of assessment cannot determine that a property is free of all environmental impairments such as chemicals and toxic substances. DWR cannot offer a certification or guarantee the absence of these conditions on the Site. This assessment is based on the findings made during the Phase I ESA and Phase II ESA investigations.

Variations could exist beyond or between areas investigated for this assessment. Conditions reported or observed could change because of the migration of contaminants, changes in grade, rainfall variation, temperature, and/or other factors not apparent during



this assessment.

This assessment was performed for the sole use of CALFED's In-Delta Storage Program. Any reliance or use of information contained herein by a third party is at such party's sole risk. Other parties who rely on information provided in this report are responsible for determining the adequacy of information provided by others.

The services performed by DWR have been conducted in a manner consistent with the level of care and skill by members of our profession currently practicing under similar conditions in the State of California. No other warranty, either expressed or implied, is made.

Regarding the usability and validity of data, the ASTM standard states, "...measurements and sampling data only represent the site conditions at the time of data collection. Therefore, the usability of data collected as part of a Phase II ESA may have a finite lifetime depending on the application and use being made of the data. An environmental professional should evaluate whether previously generated data are appropriate for any subsequent use beyond the original purpose for which it was collected." Therefore, for future use, it is recommended that any party wishing to rely on the data contained in this report should consult with either SAS staff or another qualified environmental professional.



2.0 SITE DESCRIPTION AND BACKGROUND

2.1 Legal Description

The Site consists of the following properties located approximately 10 miles west of Stockton in the Sacramento/San Joaquin Delta: Bacon Island, Bouldin Island, Holland Tract, and Webb Tract. Bacon and Bouldin Islands are in San Joaquin County, while Holland and Webb Tracts are in Contra Costa County, California. The Site is located on the following USGS 7.5 minute quadrangles: Bouldin Island, Isleton, Jersey Island, Terminous, and Woodward Island quadrangles. The total land area is approximately 21,048 acres. Site location maps are in Figures 1-4.

It should be noted that Victoria Island was originally part of the Site and included in modified Phase I ESA. However, the project proponents have since removed Victoria Island from the proposed Project. As a result, Victoria Island is not included as part of this Phase II ESA.

2.2 Site Description and Features

This is a general composite description of each Site property as observed during the site reconnaissance portion of the modified Phase I ESA performed on September 17-24, 2001 and the Phase II ESA sampling activities performed on September 5-10, 2002. A more detailed description of each property and its features is provided in the December 2001 modified Phase I ESA report.

2.2.1 Bacon Island

Bacon Island is primarily farmed agricultural land. All roads within the island are unpaved. Youngs Slu enters the island from the north. Numerous irrigation canals also intersect the island.

A variety of structures and facilities are on the island which are associated with the farming operations performed there. Four farm equipment maintenance and staging areas were present, as well as numerous single-family residences. An unpaved aircraft runway was present along the eastern perimeter of the island, approximately two miles north of the island access bridge. Three packing sheds and two trash piles were also observed on the island.

2.2.2 Bouldin Island

Bouldin Island is primarily farmed agricultural land. Sheep grazing is also occurring on the island. All roads within the island are unpaved with the exception of Highway 12 which bisects it. There are numerous irrigation canals transect the island as well.



A variety of structures and facilities are on the island which are associated with the farming operations performed there. A farm headquarters facility with out-structures is located on the eastern perimeter of the island, immediately south of the Terminous Bridge. Two radio towers were present in the southwest portion of the island. Three water pumping stations were also observed. Numerous single-family residences are present along the northern perimeter of the island.

2.2.3 Holland Tract

Holland Tract appears to be used for farming and cattle grazing. All roads within the tract are unpaved with the exception of Holland Tract Road along the southern border. Numerous irrigation canals and fences transect the tract. Approximately two square miles located in the southwest portion of this tract will not be included as part of the Site.

There are two marinas located along the southeastern corner of the tract. The marinas are accessible from the levee road, but are not within the scope of the Project. There are numerous structures and buildings, such as single-family residences, situated along the levee road that could impact the Project. Two areas along the east border appear to be used for the storage of idle farm machinery and equipment. A corral was observed in the center of the tract. Numerous 55-gallon drums and an aboveground storage tank were present on the adjacent property. The contents of these containers or vessels are unknown. Evidence of stained soils was observed in the vicinity of these drums.

2.2.4 Webb Tract

Webb Tract also appears to be is used for farming. All roads within the tract are unpaved. Access to the tract is only by ferry.

A farm headquarters facility with out-structures is located on the western border of the tract. Adjacent to the farm headquarters is a maintenance facility and storage area for farm equipment. A single-family residence was observed at the easternmost point of the tract. A hunting clubhouse was also observed adjacent to the residence. A pumping station was situated along the southern border, as was a natural gas well facility.

2.3 Modified Phase I ESA Results

The purpose of this Phase II ESA is to further investigate the recognized environmental conditions that were identified in the modified Phase I ESA report dated December 2001. Specifically, this Phase II ESA evaluates the nature and extent of suspected hazardous substance contamination at the Site.

The following section is a summary review of the conclusions and recommendations specified in the modified Phase I ESA report for the Site.



2.3.1 Bacon Island

The modified Phase I ESA revealed signs of potential soil contamination in areas on Bacon Island. Stained soils were observed at the following locations: two separate farm headquarters facilities and storage shed on the east, a farm headquarters facility on the northeast, an aircraft runway on the eastern perimeter, and a container storage area on the southeast corner of the island. It was recommended that further investigation of these areas be conducted to determine the nature and extent of contamination.

A number of single-family residences were found on the island. Based on the age of these structures, SAS staff concluded that lead-based paints and asbestos containing materials (ACM) were likely to be present. Invasive sampling and testing of suspect construction materials, such as floor tiles, and coated surfaces were recommended to determine the actual presence of these potentially toxic substances. If the presence of lead-based paint and/or ACM was confirmed, SAS staff recommended that a management or abatement plan be prepared and implemented.

Further investigation of the type of sewage system used by these residences was recommended. In addition, SAS staff recommended that any sewage system should be properly removed prior to any habitat restoration or surface water storage activities to prevent any releases of sewage material into the environment.

No water supply wells were identified from the environmental database search. However, due to the presence of single-family residences and farming operations on the island, the existence of non-reported private wells was highly probable. SAS staff recommended proper decommissioning of any well found to exist on Bacon Island that will not be used by DWR.

The modified Phase I ESA revealed soil staining and pools of product at three oil well facilities on the island. SAS staff concluded that the apparent discharges posed a potential risk for soil, surface water, and groundwater contamination. Two of those wells lie within the new Site boundaries on Section 4 (T22S, R19E). Further investigation at the oil well facilities was recommended to determine the nature and extent of the suspected contamination. Proper decommissioning and closure of these facilities was also recommended.

2.3.2 Bouldin Island

The modified Phase I ESA revealed areas of potential hazardous substance contamination at the farm headquarters facility located along Highway 12 in the center of the island. SAS staff recommended that the nature and extent of the suspected contamination be further investigated by collecting and analyzing soil samples around the large above ground fuel tanks and leaking 55-gallon drums that were present at the time of the site reconnaissance.



Three secured groundwater monitoring wells were observed along the north border of the island. Since wells could potentially serve as conduits for groundwater contamination, it was recommended that they be properly decommissioned in accordance with applicable State and local laws and regulations.

It was also recommended that a large trash pile along the north levee road be properly inventoried and disposed of. Such piles have historically contained an assortment of household garbage, used appliances, spent chemical products, and other solid waste materials. Careful assessment of the contents of the pile may be necessary in order to prevent an accidental release of a hazardous or toxic contaminant.

There was visible evidence that the contents of an unlabeled 6,000-gallon poly tank had been released into the soil. A drainage pond is located approximately 30 feet down gradient from the tank. It is unknown whether any of the contents had migrated into the pond. As a result, it was recommended that the contents of the tank and pond be assessed.

2.3.3 Holland Tract

The modified Phase I ESA revealed signs of potential soil contamination in areas on Holland Tract. Stained soils were observed at the following locations: an equipment storage shed at the southeast corner of the tract, a staging area on the east levee road, and a corral area in the center of the tract. It was recommended that further investigation of these areas be conducted to determine the nature and extent of contamination.

It was reported that the dilapidated single-family residence on the east levee road by the farm equipment staging area is a potential source of hazardous substance liability. Based on the age of the structure, SAS staff concluded that lead-based paints and asbestos containing materials were likely to be present. Invasive sampling and testing of suspect construction materials, such as floor tiles, and coated surfaces were recommended to determine the actual presence of these potentially toxic substances. If the presence of lead-based paint and/or ACM was confirmed, SAS staff recommended that a management or abatement plan be prepared and implemented.

Further investigation of the type of sewage system that may have existed at this structure was recommended. In addition, SAS staff recommended that any sewage system should be properly removed prior to any habitat restoration or surface water storage activities to prevent any releases of sewage material into the environment.

The modified Phase I ESA also revealed the presence of one water supply well in the center of the tract. Two water pumping stations were also identified, one at the northernmost tip of the tract, the other along the east border. In order to prevent the wells from potentially serving as conduits for groundwater contamination, SAS staff recommended proper decommissioning of any well that will not be used by DWR.



2.3.4 Webb Tract

SAS staff recommended that further investigation be conducted at the farm maintenance headquarters on the western side of the tract. The headquarters facility was identified as having numerous areas of possible contamination that warrant further investigation. Extensive soil staining was observed surrounding the 55-gallon drums and aboveground storage tanks on the northern side of the maintenance shed. The discolored soil surrounding farm equipment and stained soil under heavy equipment are indications that local housekeeping practices may have allowed release of farm chemicals including grease, oil, herbicides, pesticides, and fertilizers. The trash burning area could also be a source of heavy metals contamination. The Phase I ESA reported that, based on the age of the facility, the former worker living quarters adjacent to the maintenance shed may potentially contain lead and asbestos containing construction materials.

Further investigation of the fuel tanks along the south levee road was recommended. The tanks at the hunting clubhouse, water pumping station, and gas well facility all displayed evidence of spillage or leakage.

Since the monitoring wells on the island could potentially serve as a conduit for contaminants to reach groundwater, it was recommended that they be properly decommissioned and removed.



3.0 PHASE II ESA SAMPLING

After receiving the recommendations made in the modified Phase I ESA report, Leslie Pierce of DWR's Surface Storage Investigations Branch requested that Phase II sampling be performed in the aforementioned locations. Phase II soil sampling was performed on September 5-10, 2002 by SAS staff. Representative samples were collected in accordance with procedures specified in "Test Methods for Evaluating Solid Waste, 3rd edition, SW-846, U.S. EPA, September 1986." A thorough discussion of sampling procedures is provided in the Sampling Plan (see Appendix A). The Sampling Plan includes sampling objectives, rationale, and methods.

All samples were analyzed by Caltest Analytical Laboratory in Napa, California. Soil samples were analyzed for Title 22 metals (including Chrome VI), chlorinated pesticides, polychlorinated biphenyls, aromatic and total hydrocarbons (including BTEX), oil and grease, organophosphorus pesticides, and semi-volatile organic pesticides.

Note that only positive sample results are reported in the text of this report. In order to ease reporting and discussion, those soil samples which had no analyte detected in them were not listed in the tables in this section. See Appendix B for a summary compilation of sample results. Appendix C contains the original Caltest analytical results and chain of custody forms.

Photographs of sampling are contained in Appendix D. All photographs were taken by James Gleim.

3.1 Bacon Island Soil Samples

Authoritative soil samples were collected on Bacon Island at areas where heavily stained soils were observed. Specifically, samples were collected at the aircraft runway, numerous areas at both farm headquarters facilities on the eastern end of the island, and at the west side storage shed.

3.1.1 Aircraft Runway Sample Results

The runway is a roughly paved strip situated one and one-half miles north of the Bacon Island Bridge, near the east levee road (Photo 1). The runway is situated in an east-west direction. Stained soil was observed in the area south of an aboveground fuel tank. One sample was collected at 0.5 feet below ground surface towards the eastern end of the runway approximately 30 feet south of the fuel tank. Sample results are shown in Table 1.



Photo 1



AIRCRAFT RUNWAY SAMPLE RESULTS								
(Bacon Island)								
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)						
	TTLC* (mg/kg)	0.5' BGS** Sample # DWB-22a (30' south of fuel tank)						
METALS:								
Arsenic	500	6						
Barium	10,000	130						
Chromium (total)	2,500	31						
Cobalt	8,000	9						
Copper	2,500	21						
Lead	1,000	12						
Mercury	20	0.03						
Molybdenum	3,500	2						
Nickel	2,000	39						
Vanadium	2,400	47						
Zinc	5,000	55						
OTHERS:								
pH	Not Available	5.0						
Oil and Grease (mg/kg)	Not Available	10,200						

The soils sample collected at the runway detected high levels of oil and grease (highlighted in red) that may require remediation. No other elements or compounds were detected in the sample at levels that exceed the regulatory threshold value (if available).

3.1.2 North Farm Headquarters Sample Results: Waste Oil Drums

A farm operations headquarters is located approximately one mile southwest of the northeast corner of the island. Four unlabeled 55-gallon drums were observed in the northernmost storage shed (Photo 2). Stained soil was observed in the vicinity of the drums. Samples were collected south of the drums, on the opposite side of the wall visible in Photo 2. The wall does not touch the ground, therefore any spillage or leakage from the drums would also be detected there. Sample results are shown in Table 2.



Photo 2



TABLE 2									
WASTE OIL DRUM SAMPLE RESULTS (Bacon Island)									
CONSTITUENT	RI	REGULATORY LIMITS SAMPLE RESULTS (mg/kg)							
TTLC (mg/kg) 0.5' BGS* 2.0' BGS 2.0' BGS Sample # DWB-23a Sample # DWB-24b1 Sample # DWB-24b2 (adjacent to drums) (split sample)									
METALS:									
Arsenic		500		11		4		5	
Barium		10,000		150		42		50	
Chromium (total)		2,500		33		6		6	
Cobalt		8,000		10		1.6		1.7	
Copper		2,500		25		4		4	
Lead		1,000		19		1		2	
Mercury		20		0.08		ND		ND	
Molybdenum		3,500		3		3		3	
Nickel		2,000	46			9		10	
Vanadium		2,400		52		11		13	
Zinc		5,000		160		5		7	
CHLORINATE	D PE	STICIDES							
		Reporting li	mit	0.5' BGS Sample # DW (adjacent to dr	B-23a	2.0' BGS a Sample # DWE (adjacent to dr	3-24b1	2.0' BGS Sample # DWB-24b2 (split sample)	
gamma-BHC (Lindane)		0.3		0.32		ND		ND	
OTHER									
REGULATORY 0.5' BGS 2.0' BGS 2.0' BGS LIMIT Sample # DWB-23a Sample # DWB-24b1 Sample # DWB-24b2 (adjacent to drums) (adjacent to drums) (split sample)									
pН		None		4.6		4.4		4.2	
Oil and Grease		None		28,300		144		132	
* BGS = Below ground surface ND = None Detected									

The surface soil sample collected near the waste oil drums revealed high levels of oil and grease (highlighted in red) that may require remediation. However the two split samples collected at two feet below ground surface contained 99.5% less. Trace amounts of Lindane were also detected in the surface sample. No other samples detected the presence of an element or compound at a level of concern, nor do they exceed the regulatory threshold value (if available).

3.1.3 North Farm Headquarters Sample Results: Oil Tank

Two aboveground storage tanks and one 55-gallon drum were identified in the Phase I ESA report. The tanks and drum are located on the north side of the northernmost storage shed at the north farm headquarters (Photos 3 and 4). Stained soil was observed in their vicinity. Surface and depth samples were collected between the containers, where the worse stain was



Photo 3



Photo 4



observed. Sample results are shown in Table 3.

TABLE 3

WASTE OIL TANK SAMPLE RESULTS (Bacon Island)							
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)					
	TTLC (mg/kg)	0.5' BGS* Sample # DWB-25a (between tank and drums)	2.0' BGS Sample # DWB-25b				
METALS							
Arsenic	500	8	14				
Barium	10,000	120	82				
Chromium (total)	2,500	26	12				
Cobalt	8,000	8.3	6.9				
Copper	2,500	20	9				
Lead	1,000	16	3				
Mercury	20	0.05	0.03				
Molybdenum	3,500	2	5				
Nickel	2,000	41	24				
Vanadium	2,400	44	29				
Zinc	5,000	240	19				
OTHER							
REGULATORY 0.5' BGS 2.0' BGS LIMIT Sample # DWB-25a Sample # DWB-25b (between tank and drums)							
pH	None	4.6	3.8				
Oil and Grease	None	195,000	126				
* BGS = Below ground su	rface ND = None Detected						

The surface soil sample collected between the tank and drum revealed extremely high levels of oil and grease (highlighted in red) that may require remediation. No other samples detected the presence of an element or compound at a level of concern, nor do they exceed the regulatory threshold value (if available).

3.1.4 North Farm Headquarters Sample Results: Wash-down Area

An equipment wash-down area was identified during the Phase I ESA. The wash-down area is located on the south side of the packing shed at the north farm headquarters. Wet soil was observed at this location. However, it is often difficult to distinguish between soil that is wet with water and soil stained with chemicals. Therefore, samples were collected at this location (Photo 5). Authoritative surface and depth samples were collected where the majority of the wash-down rinseate seem to collect. Sample results are shown in Table 4.



Photo 5



TABLE 4

WASH-DOWN AREA SAMPLE RESULTS (Bacon Island)							
CONSTITUENT	REGULATORY LIMITS	,					
	TTLC (mg/kg)	0.5' BGS* Sample # DWB-26a	2.0' BGS Sample # DWB-26b				
METALS							
Arsenic	500	12	3				
Barium	10,000	120	28				
Chromium (total)	2,500	22	3				
Cobalt	8,000	4.8	1.2				
Copper	2,500	20	2				
Lead	1,000	9	1				
Mercury	20	0.03	ND				
Molybdenum	3,500	4	1				
Nickel	2,000	26	6				
Vanadium	2,400	44	7.3				
Zinc	5,000	55	7				
OTHER							
	REGULATORY LIMIT	0.5' BGS Sample # DWB-26a	2.0' BGS Sample # DWB-26b				
pH	None	6.4	6.2				
Oil and Grease	None	291	54				
* BGS = Below ground sur	rface ND = None Detected						

The surface soil sample collected down-gradient of the wash-down area revealed low levels of oil and grease. No other elements or compounds were detected at levels that exceeded the regulatory threshold values (if available).

3.1.5 North Farm Headquarters Sample Results: Aboveground Storage Tanks

The Phase I ESA identified two aboveground storage tanks approximately one-eighth mile southeast of the packing shed. A fenced enclosure in this area also contained four 55-gallon drums and one 5-gallon container. Stained soil was observed under the 55-gallon drums as well as in the vicinity of the 750-gallon tank (Photos 6-7). SAS staff noted that upon visiting this location to collect samples, that the drums, fence, and smaller tank were absent. One surface sample was collected. Sample results are shown in Table 5.



Photo 6



Photo 7



ABOVEGROUND STORAGE TANKS SAMPLE RESULTS (Bacon Island)									
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)							
	TTLC (mg/kg)	0.5' BGS* Sample # DWB-27a							
METALS									
Arsenic	500	10							
Barium	10,000	140							
Beryllium	75	0.5							
Chromium (total)	2,500	37							
Cobalt	8,000	8.9							
Copper	2,500	29							
Lead	1,000	270							
Mercury	20	0.1							
Molybdenum	3,500	3							
Nickel	2,000	42							
Vanadium	2,400	60							
Zinc	5,000	53							
OTHER									
REGULATORY LIMIT 0.5' BGS Sample # DWB-27a									
pH	None	3.9							
Oil and Grease (mg/kg)									
* BGS = Below ground surface									

The surface soil sample collected revealed high levels of oil and grease (highlighted in red) that may require remediation. No other elements or compounds were detected at levels that exceeded the regulatory threshold values (if available).

3.1.6 West Side Shed Sample Results: Fuel Pump

The Phase I ESA identified two aboveground storage tanks along the northwest levee road. The tanks are apparently supply fuel for the valve downhill from it (Photo 8). Stained soil was observed in the area surrounding the pump. One surface sample and one depth sample was collected. Sample results are shown in Table 6.



Photo 8



FUEL PUMP SAMPLE RESULTS									
(Bacon Island)									
CONSTITUENT	RE	GULATOR' LIMITS	1	SAMPLE RESULTS (mg/kg)					
METALS									
0.5' BGS* 2.0' BGS 2.0' BGS TTLC (mg/kg) Sample # DWB-28a Sample # DWB-28b1 Sample # DWB-28t (adjacent to pump) (split sample)									
Arsenic		500		8		5	4		
Barium		10,000		250		110	110		
Cadmium		1,000		0.05		ND	ND		
Chromium (total)		2,500		12		27	26		
Cobalt		8,000		38		7.8	7.7		
Copper		2,500		96		22	22		
Lead		1,000		0.06		15	14		
Mercury		20		5		0.06	0.06		
Molybdenum		3,500		39		2	1		
Nickel		2,000		ND		29	29		
Vanadium		2,400		31		42	41		
Zinc		5,000		290		280	270		
PETROLEUM H	YDF	ROCARBO	ONS						
	,	Reporting (mg/kg)	imit	0.5' BGS Sample # DWB-28 (adjacent to pump)	la	2.0' BGS Sample # DWB-28b1 (adjacent to pump)	2.0' BGS Sample # DWB-28b2 (split sample)		
Xylenes (Total)		0.013		ND		0.10	0.10		
OTHER									
REGULATORY 0.5' BGS 2.0' BGS 2.0' BGS LIMIT 0.5' BGS Sample # DWB-28a Sample # DWB-28b1 Sample # DWB-28b2 (adjacent to pump) (split sample)									
pН	1	None		5.1		5.5	5.6		
Oil and Grease		None		296,000		35,500	35,300		
* BGS = Below ground surfa	ace	ND = None Det	ected						

The soil samples collected near the fuel pump revealed high levels of oil and grease, especially in the surface sample (highlighted in red) that may require remediation. The subsurface samples also detected the presence xylene, a component of gasoline. In addition, an elevated level of mercury was detected in the surface sample. Although the concentration does not exceed the TTLC, it is significantly higher than what was detected approximately two feet below. No other elements or compounds were detected at levels that exceeded the regulatory threshold values (if available).

3.1.7 West Side Shed Sample Results: Burn Drum

The Phase I ESA identified ten 55-gallon drums and approximately 20 tires at the northeast end of the shed. None of the drums were labeled. No signs of leakage or spillage were observed in the area surrounding the drums. One open drum appeared to be used to burn trash. Within the debris in the drum, burnt oil filters were observed (Photo 9). One surface sample and one depth sample were collected. Sample results are



Photo 9



shown in Table 7.

TABLE 7

BURN DRUM SAMPLE RESULTS											
(Bacon Island)											
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)									
METALS											
TTLC (mg/kg) 0.5' BGS* 2.0' BGS Sample # DWB-29a Sample # DWB-29b											
Arsenic	500	5	11								
Barium	10,000	130	120								
Chromium (total)	2,500	19	24								
Cobalt	8,000	5.3	5.5								
Copper	2,500	130	27								
Lead	1,000	52	17								
Mercury	20	0.05	0.07								
Molybdenum	3,500	3	4								
Nickel	2,000	23	24								
Vanadium	2,400	24	46								
Zinc	5,000	520	43								
CHLORINATE	D PESTICIDES										
	REPORTING LIMIT	0.5' BGS Sample # DWB-29a	2.0' BGS Sample # DWB-29b								
p,p'-DDE	0.3	ND	0.01								
OTHER			•								
REGULATORY 0.5' BGS 2.0' BGS LIMIT Sample # DWB-29a Sample # DWB-29b											
рН	None	5.4	4.8								
Oil and Grease	None	89,400	2,490								
* BGS = Below ground su	urface ND = None Detecte		,								

The soil samples collected near the burn drum revealed high levels of oil and grease, especially in the surface sample (highlighted in red) that may require remediation. The subsurface samples also detected the a trace amount of p,p'-DDE, a pesticide. No other samples detected the presence of an element or compound at a level of concern, nor do they exceed the regulatory threshold value (if available).

3.2 Bouldin Island Soil Samples

Authoritative soil samples were collected on Bouldin Island at areas where extensive stained soil was observed or suspected. Specifically, samples were collected at an aboveground fuel tank located at the farm maintenance headquarters along the east side of the island. A sample was also collected were numerous 55-gallon drums were observed during the Phase I ESA site reconnaissance. A background sample was also collected at this island.

3.2.1 Farm Headquarters Fuel Tank

The Phase I ESA identified stained soil under two aboveground fuel tanks at the farm headquarters (Photos 10-11). Samples were collected from the stained area along the south side of the tanks. Sample results are shown in Table 8.



Photo 11

Photo 10

TABLE 8

I ABLE 8									
FUEL TANK SOIL SAMPLE RESULTS									
(Bouldin Island)									
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)							
METALS									
	TTLC (mg/kg)	0.5' BGS* Sample # DWL-30a1	0.5' BGS Sample # DWL-30a2 (split sample)	2.0' BGS Sample # DWL-30b	4.0' BGS Sample # DWL-30c				
Arsenic	500	4	4	6	2				
Barium	10,000	110	110	140	58				
Cadmium	1,000	ND	ND	0.8	ND				
Chromium (total)	2,500	2	20	20	7				
Cobalt	8,000	8.5	8.8	6.8	3.8				
Copper	2,500	22	22	19	5				
Lead	1,000	20	17	8	2				
Mercury	20	0.08	0.15	0.08	ND				
Nickel	2,000	24	24	21	11				
Vanadium	2,400	32	ND	31	17				
Zinc	5,000	190	32	310	17				
PETROLEUM	HYDROCARBO	NS							
	Reporting limit (mg/kg)	0.5' BGS Sample # DWL-30a1	0.5' BGS Sample # DWL-30a2 (split sample)	2.0' BGS Sample # DWL-30b	4.0' BGS Sample # DWL-30c				
Toluene	0.013	0.016	0.018	ND	0.016				
Ethyl benzene	0.013	ND	ND	ND	0.057				
Xylenes (Total)	0.013	0.045	0.041	0.12	0.43				
OTHER									
	REGULATORY LIMIT	0.5' BGS Sample # DWL-30a1	0.5' BGS Sample # DWL-30a2 (split sample)	2.0' BGS Sample # DWL-30b	4.0' BGS Sample # DWL-30c				
pН	None	5.8	5.8	5.6	6.6				
Oil and Grease	None	84,600	85,800	84,000	52,300				
* BGS = Below ground su	* BGS = Below ground surface ND = None Detected								

The soil samples collected near the fuel tanks revealed high levels of oil and grease that have apparently saturated down at least four feet below ground surface (highlighted in red). Trace amounts of toluene, ethyl benzene, and xylene, which are components of gasoline, were also detected in the samples. No other elements or compounds were detected at levels that exceed the regulatory threshold values (if available).



3.2.2 Farm Headquarters: Former Drum Storage Area

The Phase I ESA identified approximately twenty-five 55-gallon drums and farm machinery parts west of the equipment storage shed. Some of the drums were observed to be empty. However, others were sealed and unlabeled. Stained soil was observed in the area under and around the drums and equipment (Photos 12-13).

Upon visiting this location for collection of soil samples, SAS staff noted that all trash, drums, and equipment, had been removed. SAS staff also noted the absence of the storage shed. Note that Photo 14 was taken from the same location and direction as Photo 12. One surface sample was collected where SAS staff could best determine the location of the drums. Sample results are shown in Table 9.





Photo 14

TABLE 9

FORMER DRUM STORAGE AREA SAMPLE RESULTS (Bouldin Island)				
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)		
METALS				
	TTLC (mg/kg)	0.5' BGS* Sample # DWL-32a		
Arsenic	500	4		
Barium	10,000	130		
Beryllium	75			
Chromium (total)	2,500	17		
Cobalt	8,000	8.1		
Copper	2,500	38		
Lead	1,000	52		
Mercury	20	0.06		
Molybdenum	3,500	17		
Nickel	2,000	17		
Vanadium	2,400	38		
Zinc	5,000	210		
OTHER				
REGULATORY LIMIT 0.5' BGS Sample # DWL-32a				
рН	None	6.2		
Oil and Grease (mg/kg)	None	112,000		
* BGS = Below ground surface	<u> </u>			



The soil sample collected at the former drum and equipment storage area revealed high levels of oil and grease (highlighted in red). No other elements or compounds were detected at levels that exceed any regulatory threshold value (if available).

3.2.3 Background Sample

Per the sampling protocol, a single background sample was collected on Bouldin Island. The sample was collected approximately one mile west (inland) of the eastern tip of the island. The sample was collected from the edge of a fallow farm field. Sample results are shown in Table 10.

TABLE 10

BACKGROUND SAMPLE RESULTS (Bouldin Island)					
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)			
METALS					
	TTLC (mg/kg)	0.5' BGS* Sample # DWL-31a			
Arsenic	500	14			
Barium	10,000	170			
Chromium (total)	2,500	38			
Cobalt	8,000	13			
Copper	2,500	26			
Lead	1,000	10			
Mercury	20	0.07			
Molybdenum	3,500	1			
Nickel	2,000	46			
Vanadium	2,400	56			
Zinc	5,000	61			
CHLORINATED PE	STICIDES				
	REPORTING LIMIT	0.5' BGS Sample # DWL-31a			
p,p'-DDD	0.3	0.049			
p,p'-DDE	0.3	0.17			
p,p'-DDT	0.3	0.089			
OTHER					
	REGULATORY LIMIT 0.5' BGS Sample # DWL-31a				
рН	None	6.0			
Oil and Grease (mg/kg)	None	ND			
* BGS = Below ground surface					

The background soil sample collected in the field did not indicate the presence of an element or compound at levels that exceeded any regulatory threshold value (if available).



3.3 Holland Tract Soil Samples

Authoritative soil samples were collected on Holland Tract at areas where extensive stained soil was observed or suspected. Specifically, samples were collected at a storage shed and a portable aboveground storage tank along the east border, and at a waste oil storage site in the center of the tract. Three background samples were also collected at this location.

3.3.1 East Side Barn

The Phase I ESA identified a barn situated along the east side of the tract (Photo 15). With in the barn, it was noted that the concrete foundation was stained along the west side. Further observation noted that the staining ran down the outside of the foundation and into the soil





Photo 16

FIIOLO I

(Photo 16). Two sets of samples were collected at this location. One set, consisting of a surface and subsurface sample, was collected close to the foundation. The second set of samples were collected approximately four feet west (down gradient) from the foundation. Sample results are shown in Table 11.

TABLE 11

EAST SIDE BARN SAMPLE RESULTS (Holland Tract)						
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)				
METALS						
	TTLC (mg/kg)	0.5' BGS* Sample # DWH-1a (near foundation)	1.5' BGS Sample # DWH-1b (near foundation)	0.5' BGS Sample # DWH-2a (4 feet from foundation)	1.5' BGS Sample # DWH-2b (4 feet from foundation)	
Arsenic	500	3	6	2	4	
Barium	10,000	44	86	28	70	
Beryllium	75	0.2	0.3	ND	ND	
Cadmium	1,000	1.3	ND	ND	ND	
Chromium (total)	2,500	13	23	9	17	
Cobalt	8,000	3.2	6.3	2.6	3.8	
Copper	2,500	10	29	4	16	
Lead	1,000	20	31	3	18	
Mercury	20	ND	0.04	ND	0.03	
Molybdenum	3,500	2	4	ND	3	
Nickel	2,000	13	23	10	19	
Thallium	700	16	ND	ND	ND	
Vanadium	2,400	530	36	13	30	
Zinc	5,000	4.6	310	35	68	



TABLE 11 (continued)

TABLE II (CO	πιπαεα				
EAST SIDE BARN SAMPLE RESULTS					
	(Holland Tract)				
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)			
CHLORINATED PESTICIDES					
Reporting limit (mg/kg) Sample # DWH-1b Sample # DWH-2a Sample # DWH-2b (4 feet from (4 feet fro					1.5' BGS Sample # DWH-2b (4 feet from foundation)
p,p'-DDE	0.013	ND	0.045	ND	0.35
Diedrin	0.013	ND	0.34	ND	1.5
Endrin Ketone	0.013	ND	ND	ND	0.022
OTHER					
REGULATORY U.5 BGS 1.5 BGS Sample # DWH-2a Sample # DW LIMIT Sample # DWH-1b (4 feet from (1.5' BGS Sample # DWH-2b (4 feet from foundation)
pН	None	4.6	6.4	6.1	5.5
Oil and Grease	None	192	93	ND	36
* BGS = Below ground so	urface ND = None Dete	ected		•	

The soil samples collected near the barn foundation did not revealed high levels petroleum hydrocarbons as suspected. However, traces of chlorinated pesticides were detected in both subsurface samples. No other elements or compounds were detected at a level that exceeded the regulatory threshold value (if available).

3.3.2 Equipment Staging Area

The Phase I ESA identified a farm equipment staging area approximately one-half mile south of the north tip of the island. Numerous tractors, trucks, and implements were observed at this location. A 10,000 gallon diesel fuel trailer was observed here (Photo 17). The soil under the trailer was stained.

Two 55-gallon drums at this location are apparently used for burning trash. Approximately twelve more unlabeled 55-gallon drums were observed at this location. Their use could not be determined. Five 55-gallon drums at this area were labeled as being tractor hydraulic fluid barn situated along the east side of the tract (Photo 18). Two sets of samples were collected at this location. One set, consisting of a surface and subsurface sample, was collected at the stained soil by the 10,000 gallon trailer. The second sample set was collected from the stain between the 55-gallon drums. Sample results are shown in Table 12.



Photo 17



Photo 18



EQUIPMENT STAGING AREA SAMPLE RESULTS					
•		(Holland		E RESCETS	
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)			
METALS					
	TTLC (mg/kg)	0.5' BGS* Sample # DWH-3a (under tank)	2.0' BGS Sample # DWH-3b (under tank)	0.5' BGS Sample # DWH-4a (between drums)	2.0' BGS Sample # DWH-4b (between drums)
Arsenic	500	2	1	2	3
Barium	10,000	25	27	30	35
Chromium (total)	2,500	9	11	9	10
Cobalt	8,000	2.3	3.6	2.5	2.5
Copper	2,500	3	4	3	4
Lead	1,000	2	2	8	3
Molybdenum	3,500	ND	ND	ND	1
Nickel	2,000	9	13	10	11
Vanadium	2,400	12	18	13	15
Zinc	5,000	15	11	35	9
CHLORINATI	ED PESTICIDES	<u>S</u>			
	Reporting limit	0.5' BGS Sample # DWH-3a (under tank)	2.0' BGS Sample # DWH-3b (under tank)	0.5' BGS Sample # DWH-4a (between drums)	2.0' BGS Sample # DWH-4b (between drums)
Endosulfan	0.006	ND	ND	0.165	ND
PETROLEUM	HYDROCARBO	ONS			
	Reporting limit (mg/kg)	0.5' BGS Sample # DWH-3a (under tank)	2.0' BGS Sample # DWH-3b (under tank)	0.5' BGS Sample # DWH-4a (between drums)	2.0' BGS Sample # DWH-4b (between drums)
Xylene	0.0025	0.26	ND	ND	ND
SEMIVOLITII	LE ORGANIC C	COMPOUNDS			
	Reporting limit (mg/kg)	0.5' BGS Sample # DWH-3a (under tank)	2.0' BGS Sample # DWH-3b (under tank)	0.5' BGS Sample # DWH-4a (between drums)	2.0' BGS Sample # DWH-4b (between drums)
Naphthalene	0.033	12	ND	ND	ND
OTHER		-			
	REGULATORY LIMIT	0.5' BGS Sample # DWH-3a (under tank)	2.0' BGS Sample # DWH-3b (under tank)	0.5' BGS Sample # DWH-4a (between drums)	2.0' BGS Sample # DWH-4b (between drums)
pН	None	7.6	7.7	7.1	7.6
Oil and Grease	None	51,800	ND	75,600	ND
* BGS = Below ground s	surface ND = None De	tected	•	•	•

The soil samples collected at the equipment staging area revealed high levels of oil and grease on the surface (highlighted in red). Traces of a chlorinated pesticide were detected on the surface between the 55-gallon drums. Xylene was detected on the surface near the fuel tank. Naphthalene was also detected on the surface under the tank. No other elements or compounds were detected at a level that exceeded the regulatory threshold value (if available).



3.3.3 Waste Oil Area

The Phase I ESA identified a waste oil storage area situated one and one-half miles north of the south levee entrance gate (Photo 19). Observations at this location included one 500-gallon aboveground storage tank, 28 55-gallon drums, approximately 30 used engine oil filters, and two tractor batteries. Wide-spread soil staining was observed in the area



Photo 19

surrounding the drums and 500-gallon tank. Soil samples were collected in four locations: eight feet north of the telephone pole, near the palette of batteries, under the storage tank, and approximately 20 feet west of the tank among the 55-gallon drums. Sample results are shown in Tables 13-15.

TABLE 13

1ADLE 13					
	WASTE OIL AREA SAMPLE RESULTS				
(Holland Tract)					
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)			
METALS					
	TTLC (mg/kg)	0.5' BGS* Sample # DWH-5a (8' north of pole)	2.0' BGS Sample # DWH-5b (8' north of pole)	0.5' BGS Sample # DWH-7a (near batteries)	2.0' BGS Sample # DWH-7b (near batteries)
Arsenic	500	3	3	2	2
Barium	10,000	41	36	36	19
Chromium (total)	2,500	10	11	9	9
Cobalt	8,000	2.5	2.8	2.5	2.7
Copper	2,500	8	4	11	4
Lead	1,000	8	4	16	3
Molybdenum	3,500	1	ND	ND	ND
Nickel	2,000	11	12	10	10
Vanadium	2,400	13	15	13	12
Zinc	5,000	290	45	200	13
OTHER					
	REGULATORY LIMIT	0.5' BGS Sample # DWH-5a (8' north of pole)	2.0' BGS Sample # DWH-5b (8' north of pole)	0.5' BGS Sample # DWH-7a (near batteries)	2.0' BGS Sample # DWH-7b (near batteries)
рН	None	6.5	7.8	5.5	7.4
Oil and Grease	None	51,800	ND	75,600	ND
* BGS = Below ground su	urface ND = None De	tected	•	•	

The soil samples collected north of the power pole and near the batteries revealed high levels of oil and grease (highlighted in red). No other element or compound was detected at levels that exceeded the regulatory threshold value (if available).



WASTE OIL AREA SAMPLE RESULTS				
	WASIE O.			
		(Holland Tract))	
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)		
METALS				
	TTLC (mg/kg)	0.5' BGS* Sample # DWH-6a (near 500 gallon tank)	2.0' BGS Sample # DWH-6b1 (near 500 gallon tank)	2.0' BGS Sample # DWH-6b2 (split sample)
Arsenic	500	3	ND	ND
Barium	10,000	47	18	19
Chromium (total)	2,500	11	11	11
Cobalt	8,000	2.2	2.2	2.3
Copper	2,500	14	3	2
Lead	1,000	13	2	2
Molybdenum	3,500	2	ND	ND
Nickel	2,000	10	9	10
Vanadium	2,400	10	17	18
Zinc	5,000	360	12	10
OTHER				
	REGULATORY LIMIT	0.5' BGS Sample # DWH-6a (near 500 gallon tank)	2.0' BGS Sample # DWH-6b1 (near 500 gallon tank)	2.0' BGS Sample # DWH-6b2 (split sample)
рН	None	6.5	8.0	8.0
Oil and Grease	None	109,000	153	129
* BGS = Below ground su	rface ND = None Detec	ted		

The soil samples collected near the 500-gallon aboveground storage tank revealed high levels of oil and grease, mostly on the surface (highlighted in red). No other element or compound was detected at levels that exceeded the regulatory threshold value (if available).

TABLE 15

17101111				
	WASTE OIL AREA SAMPLE RESULTS			
(Holland Tract)				
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)		
METALS				
	TTLC (mg/kg)	0.5' BGS* Sample # DWH-8a (20 feet west of drums)	2.0' BGS Sample # DWH-8b1 (20 feet west of drums)	2.0' BGS Sample # DWH-8b2 (split sample)
Arsenic	500	2	1	1
Barium	10,000	39	28	27
Cadmium	1,000	0.9	ND	ND
Chromium (total)	2,500	10	11	10
Cobalt	8,000	2.3	2.3	2.2
Copper	2,500	8	3	3
Lead	1,000	9	3	3
Nickel	2,000	10	10	10
Vanadium	2,400	12	13	15
Zinc	5,000	43	11	11



TABLE 15 (continued)

- (
	WASTE O	IL AREA SAM	IPLE RESULTS	
		(Holland Trac	t)	
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)		
CHLORINATED PESTICIDES				
	Reporting limit (mg/kg)	0.5' BGS Sample # DWH-8 (20 feet west of drur		•
p,p'-DDT	0.006	0.036	ND	ND
OTHER				
	REGULATORY LIMIT	0.5' BGS Sample # DWH-8a (20 feet west of drums)	2.0' BGS Sample # DWH-8b1 (20 feet west of drums)	2.0' BGS Sample # DWH-8b2 (split sample)
рН	None	7.0	7.9	8.0
Oil and Grease	None	930	ND	ND
* BGS = Below ground su	urface ND = None Dete	cted		

The soil samples collected west of the tank and drums revealed elevated levels of oil and grease on the surface (highlighted in red). No other element or compound was detected at levels that exceed the regulatory threshold value (if available).

3.3.4 Background Sample

Per the sampling protocol, a three background samples were collected on Holland Tract. The samples were collected at three separate locations: center of north levee road on north side of tract, by the tidal gauging station along the east side of the tract, and near the gauging station along the east side of the tract, two miles north of Holland Tract Road. Sample results are shown in Table 16.

TABLE 16

	BACKGROUND SAMPLE RESULTS				
		(Holland Tract)			
CONSTITUENT	REGULATORY LIMITS	SA	SAMPLE RESULTS (mg/kg)		
METALS					
	TTLC (mg/kg)	0.5' BGS* Sample # DWH-9a (north levee road)	0.5' BGS Sample # DWH-10a (east side by tidal gauge)	0.5' BGS Sample # DWH-11a (east side by gauging station)	
Arsenic	500	3	2	2	
Barium	10,000	36	24	33	
Chromium (total)	2,500	10	8	7	
Cobalt	8,000	2.8	2.5	2	
Copper	2,500	5	5	3	
Lead	1,000	3	2	2	
Nickel	2,000	11	10	9	
Vanadium	2,400	15	12	11	
Zinc	5,000	16	13	11	



TABLE 16 (continued)

BACKGROUND SAMPLE RESULTS (Holland Tract)				
CONSTITUENT REGULATORY LIMITS SAMPLE RESULTS (mg/kg)				
OTHER				
	REGULATORY LIMIT	0.5' BGS* Sample # DWH-9a (north levee road)	0.5' BGS Sample # DWH-10a (east side by tidal gauge)	0.5' BGS Sample # DWH-11a (east side by gauging station)
pН	None	6.9	6.7	7.1
Oil and Grease	None	ND	ND	ND
Oil and Grease * BGS = Below ground so		* *=	ND	ND

None of the background soil samples detected the presence of an element or compound at a level of concern, nor do they exceed the regulatory threshold value (if available).

3.4 Webb Tract

Authoritative soil samples were collected on Webb Tract at areas where extensive stained soil was observed or suspected. Specifically, samples were collected around fuel and oil storage tanks at the farm headquarters on the west tract border. Samples were also collected near the pumps at the gas well on the south tract border. Background samples were also collected at this tract.

3.4.1 Farm Headquarters: Burn Drums

The Phase I ESA identified three 55-gallon drums north of the maintenance shed. These drums were apparently used for burning trash. A dumpster was observed by the drums that apparently was where ash from the drums was placed. Among the waste in the dumpster, burned heavy equipment oil filters were observed (Photos 20-21). Soil samples were collected in the area between the drums and trash bin. Sample results are shown in Table 17.



Photo 21



BURN DRUM SAMPLE RESULTS					
(Webb Tract)					
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)			
METALS					
	TTLC (mg/kg)	0.5' BGS* Sample # DWW-12a	2.0' BGS Sample # DWW-12b		
Arsenic	500	3	1		
Barium	10,000	65	14		
Cadmium	1,000	0.3	ND		
Chromium (total)	2,500	7	4		
Cobalt	8,000	1.6	1.7		
Copper	2,500	11	1		
Lead	1,000	75	2		
Nickel	2,000	6	6		
Vanadium	2,400	9.4	8.5		
Zinc	5,000	440	8		
OTHER					
	REGULATORY LIMIT	0.5' BGS Sample # DWW-12a	2.0' BGS Sample # DWW-12b		
рН	None	6.6	8.2		
Oil and Grease	None	79,200	ND		
* BGS = Below ground surf					

The soil samples collected between the drums and trash bin revealed elevated levels of oil and grease on the surface (highlighted in red). No other element or compound was detected at levels that exceeded the regulatory threshold value (if available).

3.4.2 Farm Headquarters: Maintenance Building Staining – West Side

The Phase I ESA identified stained soil on the west side of the equipment maintenance building (Photo 22). Samples were collected approximately 20 feet west of the northwest corner of the building. Sample results are shown in Table 18.



Photo 22



TABLE 18

MAINTENANCE BUILDING STAINING SAMPLE RESULTS (Webb Tract)						
METALS						
	TTLC (mg/kg)	0.5' BGS* Sample # DWW-13a	2.0' BGS Sample # DWW-13b			
Arsenic	500	4	5			
Barium	10,000	31	38			
Cadmium	1,000	1.3	ND			
Chromium (total)	2,500	14	6			
Cobalt	8,000	1.8	2.4			
Copper	2,500	110	2			
Lead	1,000	5	2			
Nickel	2,000	7	7			
Vanadium	2,400	24	12			
Zinc	5,000	140	9			
OTHER						
	REGULATORY LIMIT	0.5' BGS Sample # DWW-13a	2.0' BGS Sample # DWW-13b			
pH	None	6.0	8.1			
Oil and Grease	None	8,100	ND			
* BGS = Below ground surface ND = None Detected						

The soil samples collected on the west side of the maintenance building revealed elevated levels of oil and grease on the surface (highlighted in red). No other samples detected the presence of an element or compound at a level of concern, nor do they exceed the regulatory threshold value (if available).

3.4.3 Farm Headquarters: Maintenance Building Drums

The Phase I ESA identified stained soil on the north side of the equipment maintenance building by open 55-gallon drums and aboveground storage tanks (Photo 23). Samples were collected on the east side of the drums and tanks. Sample results are shown in Table 19.



Photo 23

TABLE 19

MAINTENANCE BUILDING DRUMS SAMPLE RESULTS (Holland Tract)						
METALS						
	TTLC (mg/kg)	0.5' BGS* Sample # DWW-14a	2.0' BGS Sample # DWW-14b1	2.0' BGS Sample # DWW-14b2 (split sample)		
Arsenic	500	3	3	2		
Barium	10,000	31	16	14		
Chromium (total)	2,500	6	5	5		
Cobalt	8,000	1.8	1.6	1.6		
Copper	2,500	7	1			
Lead	1,000	11	2	1		
Nickel	2,000	6	5	5		
Vanadium	2,400	8.7	7.2	7.3		
Zinc	5,000	390	12	8		
OTHER						
	REGULATORY LIMIT	0.5' BGS Sample # DWW-14a	2.0' BGS Sample # DWW-14b1	2.0' BGS Sample # DWW-14b2 (split sample)		
pН	None	5.9	7.7	7.9		
Oil and Grease	None	125,000	1,230	1,350		
* BGS = Below ground surface ND = None Detected						

The soil samples collected on by the oil drums and tanks revealed high levels of oil and grease (highlighted in red). No other element or compound was detected at levels that exceeded the regulatory threshold value (if available).

3.4.4 Farm Headquarters: Maintenance Building Fuel Tanks

The Phase I ESA identified stained soil on the north side of the equipment maintenance building under an aboveground diesel fuel tank (Photo 24). Additional staining was identified in the area surrounding a fuel tank in the same location (Photo 25). Soil samples were collected under the tank. Sample results are shown in Table 20.



Photo 25



Photo 24



TABLE 20

FUEL TANKS SAMPLE RESULTS						
		(Webb T	Tract)			
CONSTITUENT	REGULATORY LIMITS	SAMPLE RESULTS (mg/kg)				
METALS						
	TTLC (mg/kg)	0.5' BGS* Sample # DWW-15a (under fuel tank valve)	2.0' BGS Sample # DWW-15b (under fuel tank valve)	0.5' BGS Sample # DWW-16a (north of fuel tank)	2.0' BGS Sample # DWW-16b (north of fuel tank)	
Arsenic	500	4	37	7	2	
Barium	10,000	36	21	48	33	
Chromium (total)	2,500	6	6	6	6	
Cobalt	8,000	1.6	2	2.1	2.3	
Copper	2,500	3	1	3	2	
Lead	1,000	6	2	3	2	
Nickel	2,000	6	6	6	7	
Vanadium	2,400	9.2	8.2	11	9.7	
Zinc	5,000	390	10	17	9	
PETROLEUM	HYDROCARE	ONS				
	Reporting limit (mg/kg)	0.5' BGS Sample # DWW-15a (under fuel tank valve)	2.0' BGS Sample # DWW-15b (under fuel tank valve)	0.5' BGS Sample # DWW-16a (north of fuel tank)	2.0' BGS Sample # DWW-16b (north of fuel tank)	
Xylene	0.013	ND	ND	0.17	0.013	
SEMIVOLATI	ILE ORGANIC	COMPOUNDS	\mathbf{S}			
	Reporting limit (mg/kg)	0.5' BGS Sample # DWW-15a (under fuel tank valve)	2.0' BGS Sample # DWW-15b (under fuel tank valve)	0.5' BGS Sample # DWW-16a (north of fuel tank)	2.0' BGS Sample # DWW-16b (north of fuel tank)	
Naphthalene	50	ND	ND	ND	0.45	
OTHER						
	REGULATORY LIMIT	0.5' BGS Sample # DWW-15a (under fuel tank valve)	2.0' BGS Sample # DWW-15b (under fuel tank valve)	0.5' BGS Sample # DWW-16a (north of fuel tank)	2.0' BGS Sample # DWW-16b (north of fuel tank)	
рН	None	7.3	7.8	7.4	8.2	
Oil and Grease	None	51,800	ND	75,600	ND	
* BGS = Below ground surface ND = None Detected						

The soil samples collected under the fuel tank fill valve and north of the diesel fuel tank revealed high levels of oil and grease on the surface (highlighted in red). Samples also detected levels of xylene and naphthalene. No other element or compound was detected at levels that exceeded the regulatory threshold value (if available).

3.4.5 Gas Well Facility

The Phase I ESA identified a gas well facility situated along the south levee road approximately two miles west of the pumping station (Photo 26). Stained soil was observed under the elevated pump structure. Samples were collected is this location. Sample results are shown in Table 21.



Photo 26



TABLE 21

1ADLE 21					
GAS WELL SAMPLE RESULTS					
		(Webb Tract)			
CONSTITUENT	REGULATORY LIMITS		SAMPLE RESULTS	(mg/kg)	
METALS					
	TTLC (mg/kg)	0.5' BGS* Sample # DWW-20a	0.5' BGS Sample # DWW-20 (split sample)	2.0' BGS Sample # DWW-20b	
Arsenic	500	5	4	13	
Barium	10,000	1,500	1,500	250	
Chromium (total)	2,500	21	17	49	
Cobalt	8,000	5.1	5.5	8.1	
Copper	2,500	11	12	30	
Lead	1,000	9	9	7	
Mercury	20	0.15	0.21	0.04	
Nickel	2,000	21	22	45	
Vanadium	2,400	21	23	91	
Zinc	5,000	52	58	49	
OTHER					
	REGULATORY LIMIT	0.5' BGS Sample # DWW-20a1	0.5' BGS Sample # DWW-20a2 (split sample)	2.0' BGS Sample # DWW-20b	
pН	None	6.6	6.6	5.4	
Oil and Grease	None	67,200	63,000	870	
* BGS = Below ground su	rface ND = None Detec		•		

The soil samples collected under the well pump revealed high levels of oil and grease (highlighted in red). Elevated levels of barium were also detected. No other element or compound was detected at levels that exceeded the regulatory threshold value (if available).

3.4.6 Background Samples

Per the sampling protocol, a three background samples were collected on Webb Tract. The samples were collected at three separate locations: northernmost tip of tract, one-half mile west of residence on eastern point of tract, and in the field northeast of the gas well. Sample results are shown in Table 22.

TABLE 22

BACKGROUND SAMPLE RESULTS						
		(Webb Tract)				
CONSTITUENT	REGULATORY LIMITS SAMPLE RESULTS (mg/kg)					
METALS						
	TTLC (mg/kg)	0.5' BGS* Sample # DWW-18a (north tip of tract)	0.5' BGS Sample # DWW-19a (east end of tract)	0.5' BGS Sample # DWW-21a (north of gas well)		
Arsenic	500	5	7	18		
Barium	10,000	90	97	260		
Chromium (total)	2,500	41	30	48		



TABLE 22 (continued)

BACKGROUND SAMPLE RESULTS				
		(Webb Tract)		
CONSTITUENT	REGULATORY LIMITS	s	SAMPLE RESULTS	(mg/kg)
METALS				
	TTLC (mg/kg)	0.5' BGS* Sample # DWW-18a (north tip of tract)	0.5' BGS Sample # DWW-1' (east end of tract	
Copper	2,500	24	24	45
Lead	1,000	6	8	11
Mercury	20	0.09	0.09	0.06
Molybdenum	3,500	ND	1	3
Nickel	2,000	59	32	47
Vanadium	2,400	42	43	100
Zinc	5,000	54	47	51
CHLORINATED	PESTICIDES			
	Reporting limit (mg/kg)	0.5' BGS Sample # DWW-18a (north tip of tract)	0.5' BGS Sample # DWW-1' (east end of tract	
Diedrin	0.3	ND	ND	0.058
OTHER				
	REGULATORY LIMIT	0.5' BGS Sample # DWW-18a (north tip of tract)	0.5' BGS Sample # DWW-19a (east end of tract)	0.5' BGS Sample # DWW-21a (north of gas well)
pH	None	5.7	5.4	4.5
Oil and Grease	None	ND	36	ND
* BGS = Below ground surface	e ND = None Detected	d		

None of the background soil samples detected the presence of an element or compound at a level of concern, nor do they exceed the regulatory threshold value (if available). However, diedrin, a chlorinated pesticide, was detected in the background sample collected in the field north of the gas well.



4.0 QUALITY ASSURANCE / QUALITY CONTROL

Duplicate samples, equipment blanks, and field blanks were collected during the sampling process to assess the precision of field collection techniques and laboratory sample handling. Such measures also help detect cross-contamination between sample locations.

The laboratory quality assurance/quality control (QA/QC) measures and chain-of-custody documents are found in Appendix E.

It should be noted that for ease of discussion in this section, only those sample analytes which were detected are displayed. In order to ease reporting and discussion, those samples which had no analyte detected were not displayed. (For example, no analytes were detected in any of the background samples. Therefore, no table of results is displayed in Section *4.2 Equipment Blanks*.) See Appendix B for the sample results summary. Appendix C contains the original Caltest analytical results.

4.1 **Duplicate Soil Samples**

Duplicate soil samples were collected at each island and tract. The duplicate samples serve as a QA/QC measure to assess the precision of the field collection process and the analytical laboratory (State 1995). Duplicate soil samples were prepared by placing a collected soil sample in a clean stainless steel bucket, homogenizing the soil with a clean stainless steel trowel or certified clean disposable scoop, and dividing the sample into two sample jars. Tables 23-26 illustrate the duplicate samples and their results.

Note that some samples and their duplicates were not exactly equal. The extent to which this difference is acceptable is defined by SW-846 Method 6020. Method 6020 specifies the following two expectations: $1) \le 20$ Relative Percent Difference for analytes whose concentrations exceed the instrument detection level by a factor of >100; or 2) when the analyte concentrations are less than this factor of 100, a larger RPD is allowed (Gump).

TABLE 23

DUPLICATE SAMPLE ANALYSES (Holland Island)							
METALS							
	Reporting Limit (mg/kg)	DWH- 6b1	DWH- 6b2	RPD	DWH- 8b1	DWH- 8b2	RPD
Arsenic	1	ND	ND	N/A	1	2	67
Barium	1	18	19	5	28	27	4
Chromium (total)	1	11	11	0	11	10	10
Cobalt	0.4	2.2	2.3	4	2.3	2.2	4

TABLE 23 (continued)

DUPLICATE SAMPLE ANALYSES							
		(4	Holland Islai	nd)			
METALS							
Copper	1	3	3	0	3	3	0
Lead	1	2	2	0	3	3	0
Nickel	1	9	10	10	10	10	0
Vanadium	0.4	17	18	6	13	13	0
Zinc	4	12	10	18	11	11	0
OTHER							
Oil and Grease	None	153	129	17	ND	ND	N/A
RPD = Relative Percent Diffi ND = None Detected N/A = Not Applicable	erence = $[(D_1-D_2)/[(D_1-D_2)]$	D ₁ +D ₂)/2]] X 100			•	•	•

The RPD for duplicate samples collected at Holland Island are well below 20. Only the RPD of 67 for arsenic exceeds this difference. However, the analyte concentrations are 1 mg/kg, and 2 mg/kg, which are far less than 100 times the instrument detection level of 1. According to the Method 6020 guidelines, the reporting difference is acceptable.

TABLE 24

N/A = Not Applicable

DUPLICATE SAMPLE ANALYSES							
			(Webb Tract)			
METALS							
	Reporting Limit	DWW- 14b1	DWW- 14b2	RPD	DWW- 20a1	DWW- 20a2	RPD
Arsenic	1	3	2	40	5	4	22
Barium	1	16	14	13	1500	1500	0
Chromium (total)	1	5	5	0	21	17	21
Cobalt	0.4	1.6	1.6	0	5.1	5.5	8
Copper	1	1	ND	200	11	12	9
Lead	1	2	1	67	9	9	0
Mercury	0.02	ND	ND	N/A	0.15	0.21	33
Nickel	1	5	5	0	21	22	5
Vanadium	0.4	7.2	7.3	1	21	23	9
Zinc	4	12	8	40	52	58	11
OTHER					•		
Oil and Grease	None	1,230	1,350	9	67,200	63,000	7

The RPD for most of the duplicate samples collected at Webb Tract are well below 20. At least one RPD value exceeded 20 for arsenic, chromium, copper, lead, mercury, and zinc. However, the analyte concentrations for each of these are far less than 100 times their respective instrument detection levels. According to the Method 6020 guidelines, the reporting differences for duplicate samples at Webb Tract are acceptable.



TABLE 25

	DUP	LICATE	SAMPL	E ANALY	YSES		
		(Bacon Islan	d)			
METALS							
	Reporting Limit (mg/kg)	DWB- 24b1	DWB- 24b2	RPD	DWB- 28b1	DWB- 28b2	RPD
Arsenic	1	4	5	22	5	4	22
Barium	1	42	50	17	110	110	0
Chromium (total)	1	6	6	0	27	26	4
Cobalt	0.4	1.6	1.7	6	7.8	7.7	1
Copper	1	4	4	0	22	22	0
Lead	1	1	2	67	15	14	7
Mercury	0.02	ND	ND	NA	0.06	0.06	0
Molybdenum	1	3	3	0	2	1	67
Nickel	1	9	10	11	29	29	0
Vanadium	0.4	11	13	17	42	41	2
Zinc	4	5	7	33	280	270	4
AROMATIC & T	TOTAL PUI	RGEABLI	E PETRO	LEUM HY	DROCAF	RBONS	
Xylenes (total)	0.013	ND	ND	NA	0.10	0.16	46
OTHER							
Oil and Grease	None	144	132	9	35,500	35,300	1
RPD = Relative Percent Diffe ND = None Detected N/A = Not Applicable	erence = $[(D_1-D_2)/[(D_1-D_2)]$	D ₁ +D ₂)/2]] X 100					

The RPD for most of the duplicate samples collected at Bacon Island are well below 20. At least one RPD value exceeded 20 for arsenic, lead, molybdenum, and zinc. However, the analyte concentrations for each of these are far less than 100 times their respective instrument detection levels. As with samples collected at Webb tract, according to the Method 6020 guidelines, the reporting differences for duplicate samples at Bacon Island are acceptable.

TABLE 26

TABLE 20					
	DUPLICA	TE SAMPLE A	NALYSES		
		(Bouldin Island)			
METALS					
	Reporting Limit	DWL-30a1	DWL-30a2	RPD	
Arsenic	1	4	4	0	
Barium	1	110	110	0	
Chromium (total)	1	20	20	0	
Cobalt	0.4	8.5	8.8	3	
Copper	1	22	22	0	
Lead	1	20	17	16	
Mercury	0.02	0.08	0.15	61	
Nickel	1	24	24	0	
Vanadium	0.4	32	ND	200	
Zinc	4	190	32	142	
AROMATIC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS					
Toluene	0.013	0.016	0.018	12	
Xylenes (total)	0.013	0.045	0.041	9	



TABLE 26 (continued)

DUPLICATE SAMPLE ANALYSES						
(Bouldin Island)						
OTHER						
	Reporting Limit	DWL-30a1	DWL-30a2	RPD		
Oil and Grease	None	84,600	85,800	1		
RPD = Relative Percent Difference = $[(D_1-D_2)/[(D_1+D_2)/2]] \times 100$						
ND = None Detected						
N/A = Not Applicable						

The RPD for duplicate samples collected at Bouldin Island are well below 20. Only RPD values that exceed 20 are those for mercury, vanadium, and zinc. However, the detected concentrations for these three analytes, although elevated, are less than 100 times their respective instrument detection levels. According to the Method 6020 guidelines, the reporting difference is acceptable.

4.2 Equipment Blanks

Equipment blanks were collected at Holland Island and Webb Tract as another QA/QC measure to help check for possible contamination from the field equipment used to sample below the stain. This blank was collected by running deionized water over the sample auger. The rinseate was collected in a stainless steel bucket, and then poured through a stainless steel funnel into an amber glass bottle containing the appropriate preservative. These samples were analyzed for Title 22 heavy metals, including Chromium VI. No analytes were detected in the equipment blank samples.

4.3 Field Blanks

Four field blanks were collected as a QA/QC measure to check for possible contamination from sampling procedures and handling. Field blanks were collected by pouring deionized water into an amber glass bottle containing the appropriate preservative. Detection in this sample would indicate possible contamination of soil samples by the deionized water used throughout the sampling process, or contamination because of improper handling of samples. Samples were analyzed for aromatic and total purgeable petroleum hydrocarbons, which are some of the main ingredients in gasoline. No petroleum hydrocarbons were detected in any of the field blank samples.



5.0 CONCLUSIONS AND RECOMMENDATIONS

The following section discusses the conclusions and recommendations made by SAS staff based on the information obtained during the Phase I and Phase II investigations.

5.1 Stained Soil

Stained soils under and around equipment maintenance and storage facilities, fuel tanks, and oil storage tanks was observed and sampled. Laboratory results confirmed the presence of elevated levels of oil and grease. No other elements or compounds were detected at levels that exceeded established regulatory threshold values.

Based on the results of the Phase II ESA sampling, SAS recommends further investigation of the identified "hot spot" areas to better delineate the extent of contamination. Further investigation may include more invasive subsurface soil sampling, surface water and groundwater sampling, and environmental fate studies for each of the contaminants of concern. SAS also recommends that any contaminated soil at or near water supply well sites be removed and properly disposed of, or remediated, depending on the extent of contamination.

5.2 Gas Wells

SAS recommends that all measures be taken to indemnify the State from any liability associated with future hazardous substance contamination or remedial actions associated with the natural gas wells that are present throughout the Site. At this time, these gas wells and the parcels on which they are situated may not be part of the land acquisition for the Project. Such measures may include establishing baseline soil and groundwater sampling data for the properties surrounding the gas wells or inserting indemnification clauses in each of the proposed purchase agreements.



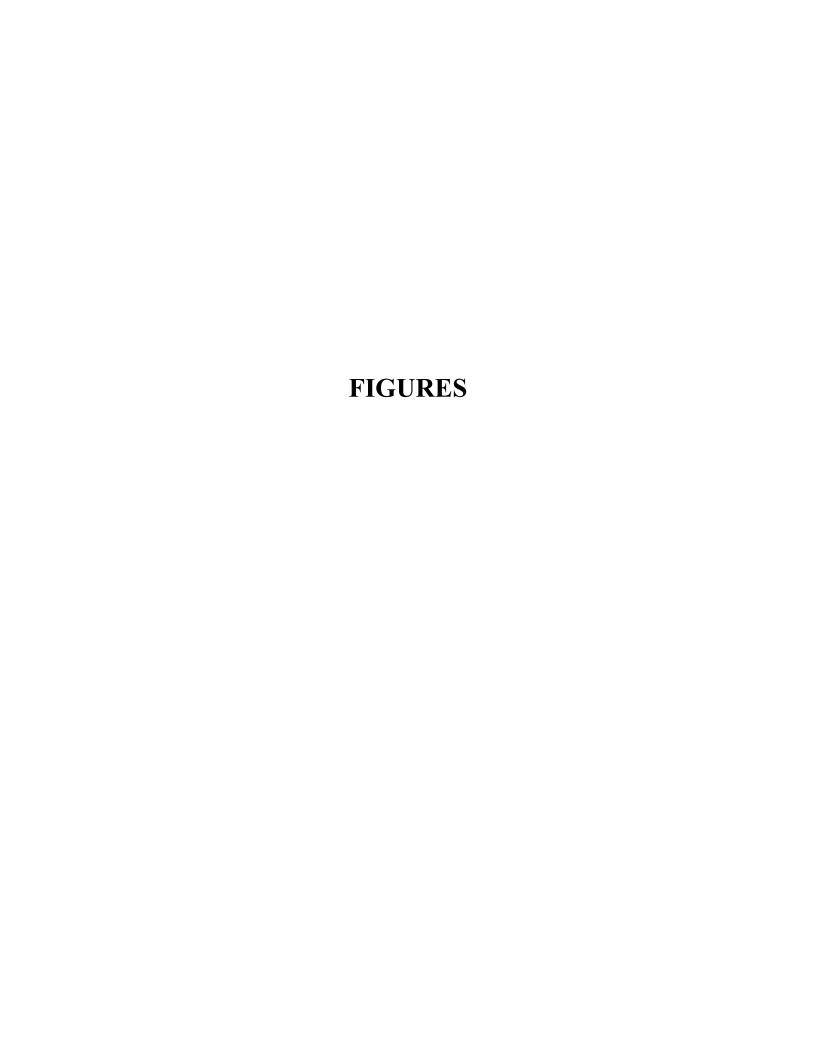
6.0 REFERENCES AND PERSONS CONSULTED

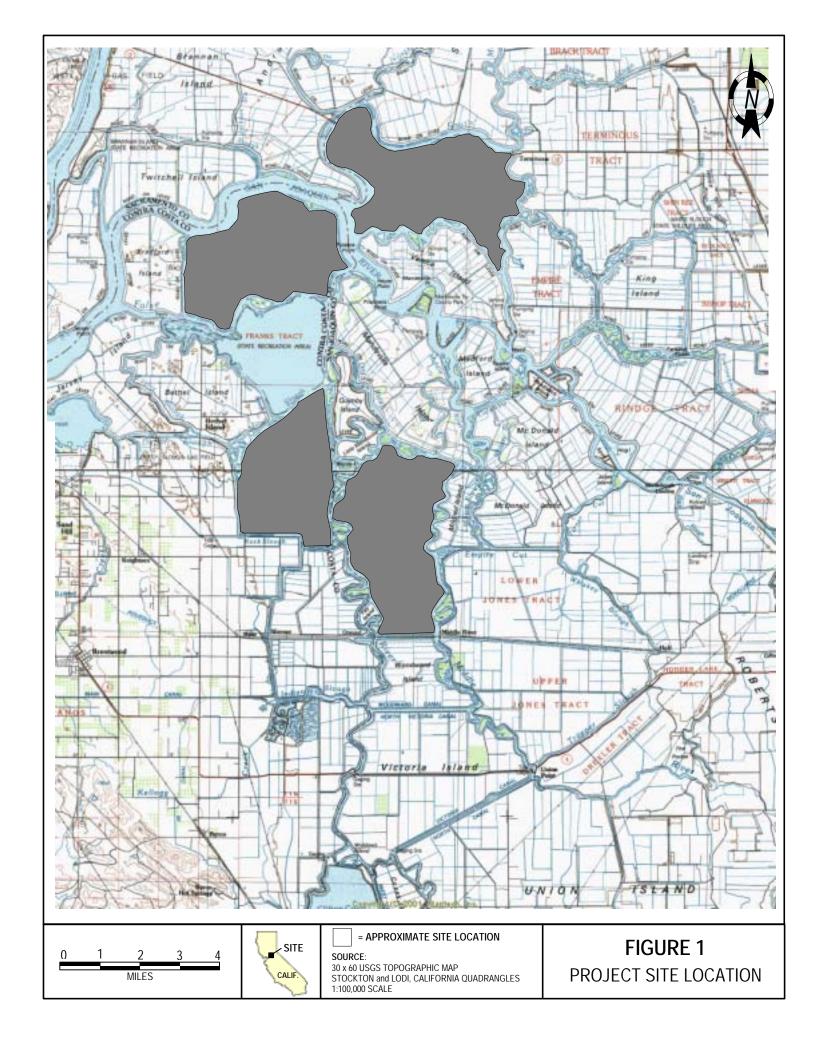
- American Society for Testing and Materials. 1997. Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process. ASTM Designation: E 1903-97. p. 313-326
- Caltest Analytical Laboratory. 2002. Performed chemical analyses on soil and water samples during September 2002 at their Napa, California facility.
- DeLorme Mapping Company. 1988. Northern California Atlas and Gazetteer. Second Edition, Fourth Printing. p. 46-47.
- Gump, Barry, Ph.D. 1998. Quality Assurance/Quality Control Unit, Division of Planning and Local Assistance, California Department of Water Resources. Provided statistical consultation to Site Assessment staff May 8, 1998 May 18, 1998 for the Phase II ESA for the South Geysers Powerplant.
- Maptech, Incorporated. 1999, Version 5.01. *California Central Coast/Fresno* CD-ROM. Terrain Navigator Central California CD-ROM set.
- State of California. 1995. Department of Water Resources. Compilation of Sediment & Soil Standards, Criteria, & Guidelines.
- State of California. 1995. Department of Water Resources. *Municipal Water Quality Investigations Program Field Manual*. Page 6-2.

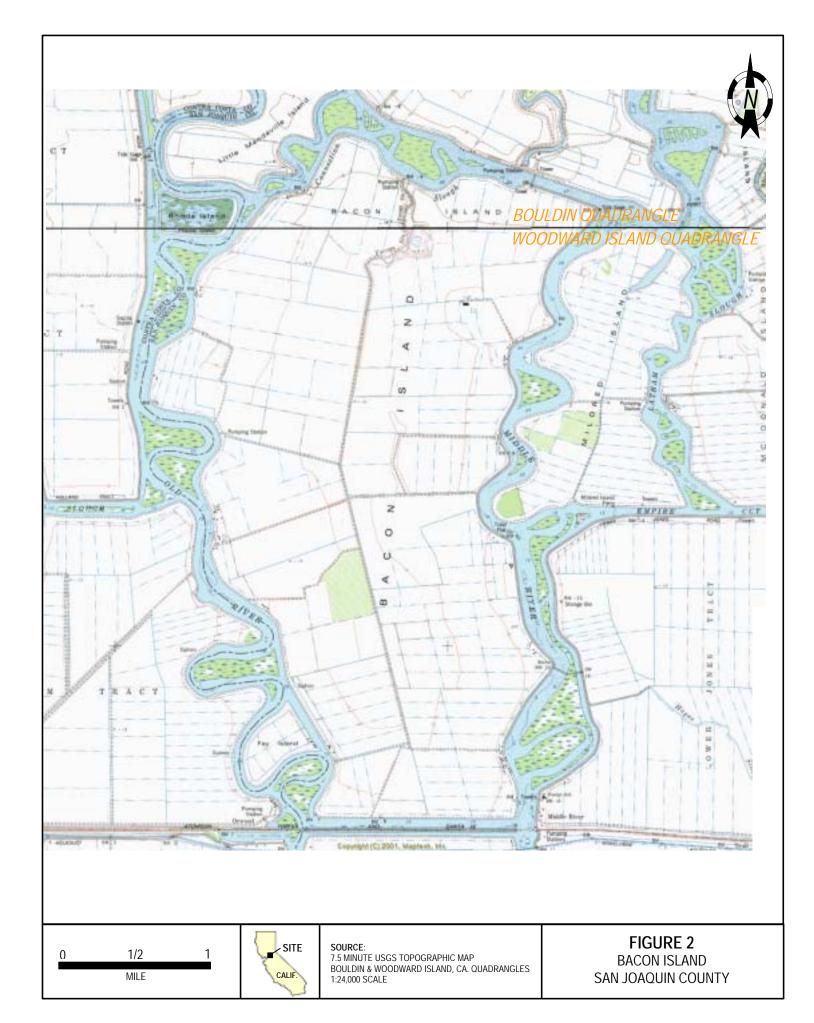


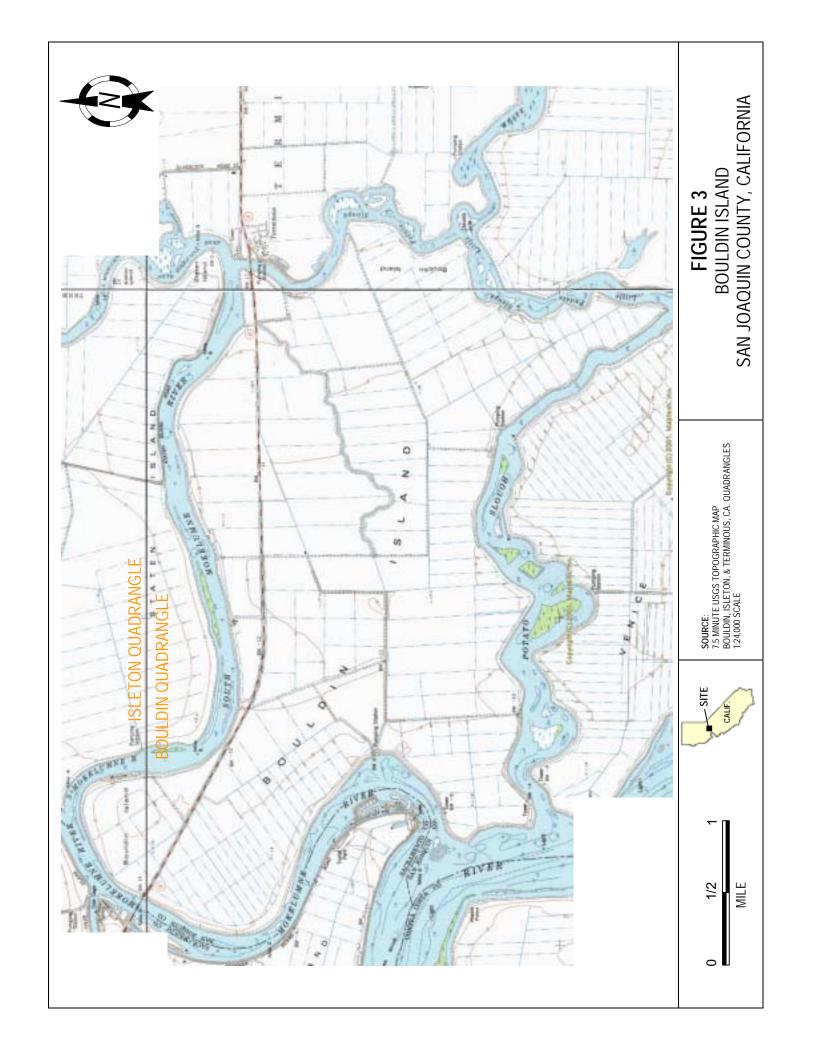
7.0 SIGNATURES

Prepared by:	Reviewed by:
James Gleim	Derrick J. Adachi, Chief
Environmental Scientist	Environmental Site Assessment Section
REA-07559	REA-06706









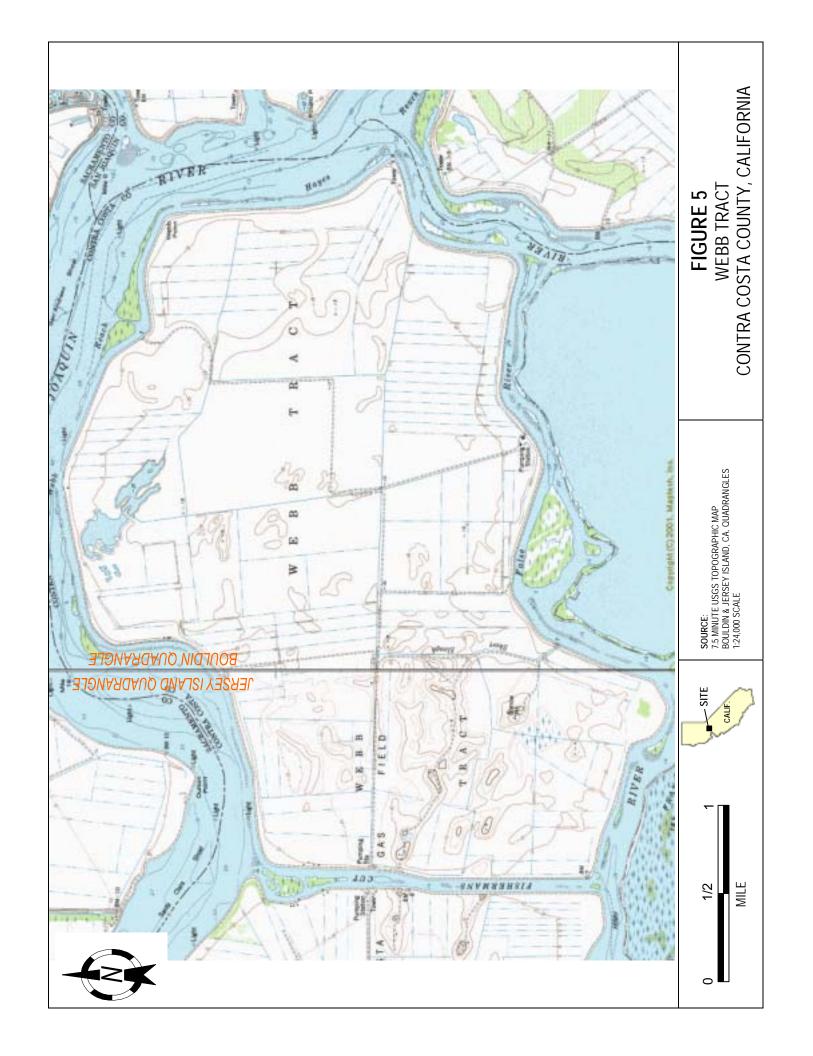


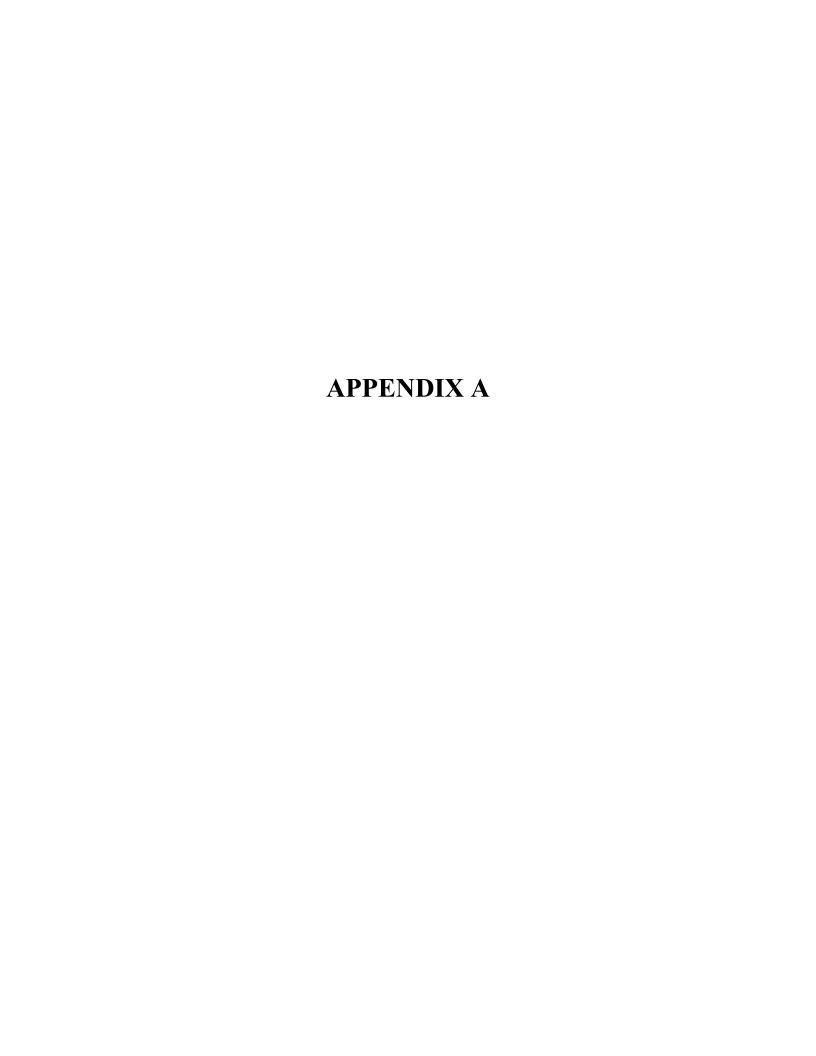


0 1/2 1 MILE



SOURCE: 7.5 MINUTE USGS TOPOGRAPHIC MAP BOULDIN & WOODWARD ISLAND, CA. QUADRANGLES 1:24,000 SCALE FIGURE 4
HOLLAND TRACT
CONTRA COSTA COUNTY





SAMPLING PLAN DELTA WETLANDS / IN-DELTA STORAGE

All sampling designed in this Sampling Plan is to obtain representative samples and is in accordance with procedures specified in "Test Methods for Evaluating Solid Waste, 3rd edition, SW-846, U.S. EPA, September 1986".

Background

The acquisition of four islands within the Sacramento/San Joaquin Delta is currently under consideration by DWR. The islands are Webb Tract, Bouldin Island, Holland Tract, and Bacon Island. It is proposed that two of the islands be flooded for water storage and two be used as mitigation land. This project is part of a comprehensive feasibility study associated with CALFED's Delta Wetlands Project.

The *modified* Phase I Environmental Site Assessment for the project site reported the presence of numerous waste oil drums and farm equipment maintenance areas. Many of such facilities had soil staining around them. Numerous water wells are at the Site which are potential conduits for groundwater contamination. It was recommended that the presence, nature, and extent of soil contamination be further investigated.

Objectives

The purpose of sampling at the site is to determine the presence or absence of contamination in the soil at the Site, and to make preliminary determinations regarding the nature and extent of any waste encountered. Soil samples will be collected to determine if any contaminants are present at concentrations exceeding regulatory threshold levels. Background samples will also be collected to determine the presence and concentration of any contaminants of concern in the general area surrounding the Site. Photographs will be taken to document the sampling event.

Personnel

Sampling will be conducted under the direction of Derrick J. Adachi, REA, Chief of the Site Assessment Section. Sampling will be performed by James W. Gleim, REA, Environmental Scientist Range C, Christopher Huitt, Environmental Scientist Range B, and Donald Guy, Environmental Scientist Range B.

Health and Safety

A Site Safety Plan for sampling activities was prepared and is included as Appendix A of this Sampling Plan. Appropriate personal protective equipment will be used to protect worker health and safety during the sampling event.

Rationale for Sampling Methods

A. Number of Samples Collected

DWR will collect a maximum of **130** soil samples from suspected areas of contamination surrounding the oil well facilities, above-ground storage tanks, and water pump facilities. A number of the soil samples will be collected from the same location, but from various depths. These samples will aid in determining the nature and extent of contamination.

B. Sampling Strategy

All samples collected for contaminant levels shall be done in accordance with the following requirements:

1. Grab Sampling:

Grab samples will be performed at the site, which dictates that the sampling and analysis of all samples collected should be identical so that bias is minimized. Soil samples will be collected at **0.5**, **2.0**, and **4.0** feet below ground surface. Samples will be collected at locations where soil contamination is suspected to be at the highest concentration within each individual area of concern.

- (a) Sampling locations will be identified and recorded.
- (b) Samples shall be collected using stainless steel spoons, a stainless steel shovel, and stainless steel hand or power auger flights, extensions, and bits. Each sample will be placed into a Level 2 pre-cleaned sample jar, sealed, labeled, and stored in a cooler with ice.
- (c) All sampling equipment that was in direct contact with the soil shall be decontaminated prior to use at another sampling location.

2. Duplicates

As part of field QA/QC measures, 4duplicate samples shall be collected. Where the number of duplicate samples is a fractional number, the number of duplicate samples collected shall be rounded up to the next whole number. The duplicate sample collected shall be submitted as a "blind duplicate." Sample identification numbers for the duplicate will be unique and indistinguishable from the other samples. The duplicate will be noted the field notebook for referencing in the report of analysis.

3. Equipment Blank

As part of field QA/QC measures, **2** equipment blank shall be collected on the same day as sample collection. The equipment blank shall be taken by rinsing lab grade deionized water on the sample collection equipment (shovel and spoon) and collecting this rinseate in a Level 2 precleaned sample container.

4. Travel Blank (NONE)

As part of field QA/QC measures, a travel blank will be obtained when the empty sample containers are picked up from E.S. Babcock and Sons, Inc. (Babcock), the certified analytical laboratory performing the analyses on the samples collected from the Site. This travel blank, consisting of sample containers filled

with deionized water by Babcock staff, will be placed in an ice chest upon receipt and will be kept with the collected samples for the duration of the sampling event. The travel blank will be submitted to Babcock along with the collected samples for analysis.

5. Background Samples

At least 7 background soil samples shall be collected at locations where the ground surface has not been farmed and is in a relatively natural and undisturbed state. The samples will be collect up-gradient from the Site. The background samples shall be taken at a depth of at least 3 inches below ground surface. Background samples shall be collected using the same equipment and methodology as all other samples. Background samples may be identified as such.

Sampling Methodology

- a. Equipment: Any combination of disposable plastic bags, a stainless steel shovel, stainless steel spoons, stainless steel hand auger, slide hammer, or power auger with its respective stainless steel extensions, flights, bits, and sampling sleeves will be used to collect samples.
- b. Decontamination: Reusable sampling equipment shall be cleaned prior to the collection of each sample. Decontamination shall be conducted by the following procedure:
 - 1. Shovels and spoons shall have gross contaminants removed by hand.
 - 2. Equipment shall be thoroughly washed with non-phosphate detergent and deionized water.
 - Triple rinse with deionized water.
- c. Containers: All soil samples will be collected in 8-ounce borosilicate glass wide-mouth jars with Teflon closures. Water samples to be analyzed for Title 22 metals will be collected in 1-quart plastic containers preserved in advance with HNO3. Water samples to be analyzed for pH will be collected in 1-quart plastic containers. Water samples to be analyzed for TPH will be collected in 1-liter amber glass jars with Teflon closures. Water samples to be analyzed for the volatile and semi-volatile organics scan will be collected in 2-liter amber glass jars with Teflon closures. Water samples to be analyzed for volatile organic compounds will be collected in two duplicate 40-ml amber glass vials with Teflon closures preserved in advance with HCl. Water samples to be analyzed for carbamate pesticides will be collected in 1-liter amber glass jars with Teflon closures. Care will be exercised to avoid cross-contamination from equipment or gloves.
- d. Duplicates: Samples will be collected following this procedure:
 - ? placing a collected soil sample into a new disposable plastic bag
 - ? homogenizing the sample by hand
 - ? dividing the sample into two sample jars

7. Chain of Custody

All samples will be sealed and labeled upon collection. The sample number, date, time, location and name of the sampler will be recorded. In addition, the samples will be entered on Chain of Custody forms before delivery to the

laboratory. The samples will be stored and transported in a container cooled with ice packs. The cooler containing the samples and Chain of Custody will be delivered to Babcock, a certified analytical laboratory.

C. **Analysis**

Samples collected will undergo the following analyses:

SAMPLE ANALYSIS	<u>METHOD</u>
рН	EPA Method 9045C
TTLC - Title 22 Metals [†]	EPA Methods 6010B/7471A/200.7
BTEX & MTBE (Benzene, Toluene, Ethylbenzene, Xylene)	EPA Method 8260
Oil/Grease	EPA Method 1664
Organochlorine Pestcides	EPA Method 8081A
Polychlorinated Biphenyls	EPA Method 8082
Polynuclear Aromatic Hydrocarbons	EPA Method 8100
Organophosphorous Compounds	EPA Method 8141A
Polyaeromatic Hydrocarbons	EPA Method 8015/8020A
Semivolatile Organic Compounds	EPA Method 8270

⁺ [17] Title 22 Metals plus Hexavalent Cr (VI) [Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, V, Zn]

After initial results are received, DWR may request that the following analysis be performed on the samples collected:

SAMPLE ANALYSIS

METHOD

STLC - Waste Extraction Test **

EPA Method 6010/6020 (for metals only) ****

^{**} Waste Extraction Test for metals - Title 22 CCR, Div 4.5, Chapter 11, Appendix 2, Section 66261.126 et al

^{***} As a general rule, total concentrations of a metal that exceed 10 times the STLC have the potential to exceed the Soluble Threshold Limit Concentration. Appropriate and equivalent analytical methods may be substituted as necessary by the analytical laboratory.

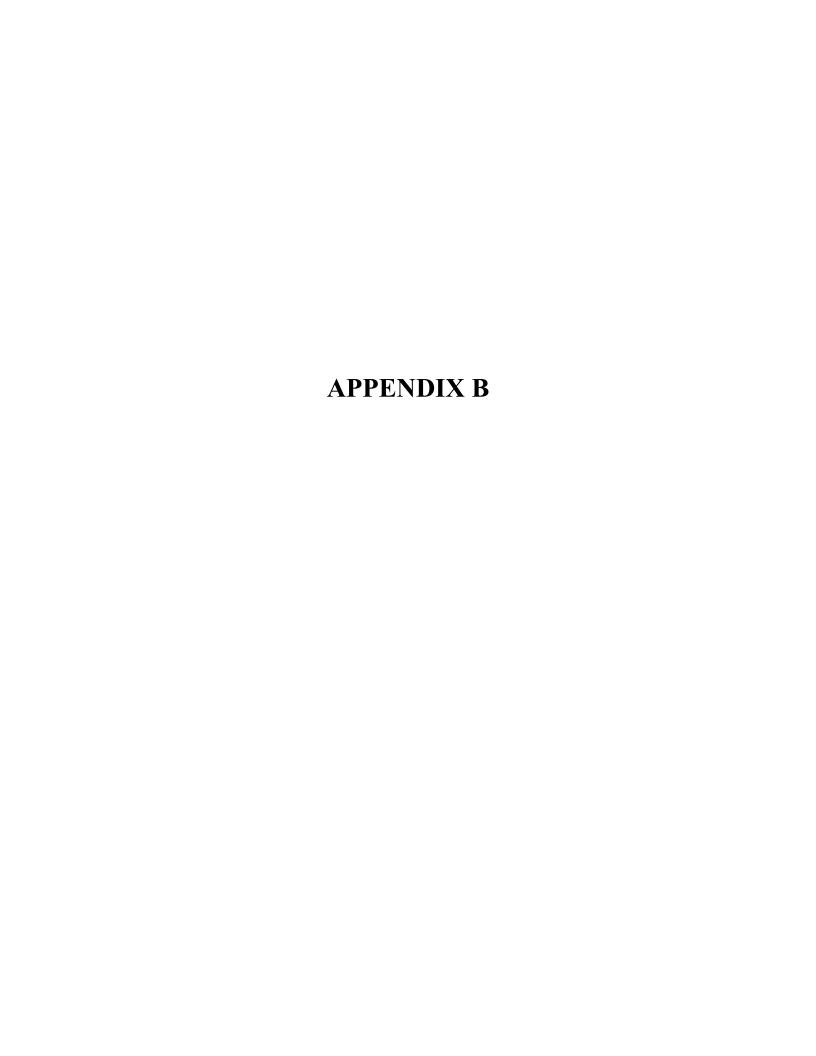
References

Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., November 1986, U.S. EPA, Office of Solid Waste and Emergency Response, Washington, D.C..

HML Users Manual, October 1990, California Department of Health Services, Hazardous Materials Laboratory, Berkeley, CA.

Statistical Analysis of Ground-Water Monitoring Data At RCRA Facilities, Interim Final Guidance, April 1989, U.S. EPA, Office of Solid Waste and Emergency Response, Washington, D.C..

Preliminary Endangerment Assessment Guidance Manual (A guidance manual for evaluating hazardous substance release sites.), January 1994, California Department of Toxic Substance Control, Sacramento, CA.



SOIL SAMPLE RESULTS METALS

	Reporting	Reporting Limit	TTLC* for	DWB-	-DWB-	DWB-	DWB-	DWB-	DWB-	DWB-	DWB-	DWB- D									-DWB-	_	DWB-						_		ф
Analyte	Limit (Soil)	(Water)	Metals	22a	22a 22ah 23a	23a	23ah	23ah 24b1	24bh1	24b2			25ah 2	25b 28	25bh 26	26a 26	26ah 26b	b 26bh	h 27a	1 27ah		28ah		28bh1	28b2	28bh2	29a 29	29ah 2	29b 29l	29bh 29	29EB
	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg) (r	(mg/L) (r	(mg/L) (mg	(mg/L) (mg	(mg/kg) (mg/kg)	kg) (mg/kg)	m) (bybu)	m) (by/bu)	(mg/kg) (mg/	(mg/kg) (mg	(mg/kg)								
Antimony	2	0.006	200	ND		ND		ND		ND		ND		ND	Z	ND	ND		ND		ND		ND		ND		ND	_	ND		
Arsenic	1	0.002	200	9		11		4		5		8		14	1	12	3		10		8		2		4		2	,	11		
Barium	1	0.1	10,000	130		150		42		20		120		82	1,	120	28		140		250		110		110		130	1	120		
Beryllium	0.2	0.001	75	ND		ND		ND		ND		ND		ND	Z	ND	ND		0.5		ND		ND		ND		ND	_	ND		
Cadmium	0.2	0.001	1000	ND		ND		ND		ND		ND		ND	Z	ND	ND		ND		0.05		ND		ND		ND	_	ND		
Hexavalent Chromium	0.5	0.01			ND		ND		ND		ND		ND		ND	Z	ND	ND		ND		ND		ND		ND	_	ND	ND		ND
Total Chromium	1	0.01	2,500	31		33		9		9		56		12	2	22	3		37		12		27		26		19		24		
Cobalt	0.4	0.01	8,000	6		10		1.6		1.7		8.3	,	6.9	4.	4.8	1.2	2	8.9		38		7.8		7.7		5.3	4)	5.5		
Copper	1	0.01	2,500	21		25		4		4		20		6	2	20	2		29		96		22		22		130		27		
Lead	1	0.005	1,000	12		19		1		2		16		3	3,	6	1		270		90.0		15		14		52	,	17		
Mercury	0.02	0.001	20	0.03		0.08		ND		ND		0.05	J	0.03	0.0	0.03	ND		0.1		5		90.0		90.0		0.05	0	0.07		
Molybdenum	1	0.01	3,500	2		3		3		3		2		2	7	4	1		3		39		2		1		3		4		
Nickel	1	0.01	2,000	39		46		6		10		41		24	2	26	9		42		ND		59		29		23		24		
Selenium	2	0.005	100	ND		ND		ND		ND		ND		ND	Z	ND	ND		ND		ND		ND		ND		ND	_	ND		
Silver	9.0	0.01	200	ND		ND		ND		ND		ND		ND	Z	ND	ND)	ND		ND		ND		ND		ND	_	ND		
Thallium	2	0.001	700	ND		ND		ND		ND		ND		ND	Z	ND	ND		ND		ND		ND		ND		ND	_	ND		
Vanadinium	0.4	0.01	2,400	47		52		11		13		44		59	4	44	7.3	3	9		31		42		41		24	7	46		
Zinc	4	0.01	5,000	22		160		2		7		240		19	2	22	7		53		290		280		270		520	,	43		

ND: None Detected at Reporting Limit

mg/kg: millligrams/kilogram = parts per million µg/L: micrograms/liter = parts per billion

^{*}Total Threshold Limit Concentration given in Title 22 California Code of Regulations, secion 66261.24

SOIL SAMPLE RESULTS

pH, Chlorinated Pesticides, PCBs, PAH, Oil & Grease

1	Analyte	Reporting Limit (soil)	22a	DWB- 22ah	DWB- 22ah DWB-23a	DWB- 23ah	24b1 24bh1	B- DWB- h1 24b2	- DWB-	25a	25ah	25b 2	DWB- DWB- 25bh 26a	B- DWB- a 26ah	Seb - BWB-	26bh	27a	DWB- 27ah DWB-28a DWB-28ah	ta DWB-28ah	28b1	28bh1 1	28b2 2	DWB- D	DWB- DWB- 29a 29ah	rB- DWB- ah 29b	- DWB-	. DWB-
The column The	H	(1)	9	(course)	4.6	formation	4.4	4.2	Н	4.6		3.8	9	H	6.2		3.9	H		5.5		5.6		H			
The column The	Analyle	Reporting Limit (soil)			DWB-23a														la DWB-28ah	DWB- 28b1							DWB-
Column C	CHLORINATED PESTICIDES	(mg/kg)	}			ł	l l		ł	ļ	ł			ł	ł			i i			ł	ŀ	ł	-	ł	ł	ł
Column C	ldrin	0.3	QN		QN		QN	QN		QN		QN	Z	0	QN		QN	QN		QN		QN		ND	N		
The column Column	pha-BHC	0.3	QV		Q		Q.	QN		Q		QN	Z	0	QV		QN	QV		QN		QN		QU	Z		
Column C	sta-BHC	0.3	9 !		9		9 !	2		9 !		9 :	Z :	0	9 :		9 !	2		9 !		2 :		Q !	2		
The column The	mma-BHC (Lindane)	0.3	9 !		0.32		9 !	2		9 !		9 :	Z :	0	9 !		9 !	Q :		9 !		9 :		Q !	2		
	ta-BHC	0.3	Q .		2 4	l		2 5	1	Q S		2 5	z :		Q !		2 5	2 5		2 9		Q :		QV S	2 5		
Column C	lordane	9.0	2 9		2 9		2 9	2 2		2 9		2 2	Z 2	0.0	2 2		2 2	2 2		2 2		2 2		Q 9	2 2		
The color of the	000-	60.3	2 9		2 9		2 9	2 2		2 2		2 2	Z 2	2	2 2		2 2	2 2		2 2		2 2		2 9	N 6		
Column C	-00E	0.3	2 5		N G	l	D G	2 2		2 2		2 2	2 2		2 5		2 2	2 2		2 9		N S		N 4	0.0		
Column C	-DDT	0.3	9 :		Q !		Q !	2		2		2	z :	0	2		Q !	Q !		2		Q.		Q !			
No. No.	ldrin	0.3	9 :		9		2	2		9		2	Z :	0	9 :		9 !	2		9 !		2		Q !	2		
No. No.	dosulfan	0.3	2		9		2	2		9		2	Z		2		9	2		9		Q.		2	2		
No. No.	dosulfan II	0.3	2		9		2	2		2		2	Z	0	2		9	2		9		2		2	2		
No. No.	dosulfan Sulfate	0.3	2		2	1	Q.	2		2		Q	Z	0	2		2	2		2		QN.		Q	2		
1 1 1 1 1 1 1 1 1 1	drin	0.3	2		9	+	9	2		2		2	Z		2		9	2		9		2		9	2		
1	drin Aldehyde	0.3	Q		Q		QN	Q		Q		QN	Z	0	P		Q	Q		R		QN		Q	Z		
1 1 1 1 1 1 1 1 1 1	drin Ketone	0.3	Q		Q		Q	Q		Q		Q	Z	0	Q		Q	Q		Q		Q		Q	Z		
1	ptachlor	0.3	Q		Q		QN	Q		Q		QN	Z	0	P		Q	Q		R		QN		Q	Z		
No. 100	ptachlor Epoxide	0.3	Q		Q		Q	Q		Q		Q	Z	0	P		Q	Q		2		QN		Q	Z		
No. No.	thoxychlor	0.3	Q		Q		Q	Q		Q		Q	Z	0	P		Q	Q		2		QN		Q	Z		
No. 105	aphene	0.0	2		9		P	2		9	1	2	Z	0	Q		9	2		9		Q.		9	2		
This column	rogate TCMX	L	S		105 (%)		17 (%)	83 (%	0	2		S	88	(%	(%)		S S	S		91 (%)	-	(%)		2	80 (3		
Figure Column C	rogate Decachlorobiphenyl		S		Š		56 (%)	%)	0	2		SC	36 ((%	21 (%)		S	S		S	-	20 (%)		S	40 (3	(6)	
This column		Reporting Limit (soil)		DWB- 22ah	DWB-23a														ta DWB-28af	DWB- 28b1							DWB-
004 NO.		(mg/kg)	(mg/kg)	(mg kg)	(mg kg)	-	ŀ	L	- 1	(mg kg)	(mg.f.)	F	L	- 1	-	(mg kg)	-	-	(mg/kg)	(mg kg)	(mg/g)	- }	-	-	- }	ŀ	(pright)
004 ND	LYCHLORINATED BEPHENYLS																										
No. No.	3 1016	0.04	2		2	1	Q	2		Q		Q	Z	0	2		9	2		9		Q		Q	물		
044 NG	3 1221	0.04	9 :		2 !		9 !	2		9 !		2	Z :	0	9 :		Q !	g :		9 !		Q :		Q !	2		
0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	3 1232	0.04	2 :		2 !	1		2 :		2	1	2	Z :		2 !		2 :	2		2 !		Q :		2 :	2		
1044 NG	3 1242	0.04	9 :		9 !	1	2	2		9 !		2 :	z :		9 :		9 !	Q :		2 !		Q :		9 !	2		
044 NG	3 1248	0.04	Q		Q		Q	2		R		Q	Z	0	2		Q	QN		9		QN		Q	2		
Table Tabl	3 1254	0.04	2		9	+	9	2		2		2	Z		2		9	2		9		2		2	2		
Table Tabl	3 1260	0.04	2		2		9	2		2		2	Z	0	9		P	2		9		Q		P			
Total Color	ogate TCMX		73 (%)		(%) 62		39 (%)	93 (%	(0	(%)		42 (%)	92 ((%	62 (%)		NC	76 (%)		75 (%)	_	82 (%)		S	5) 62	.0	
Particular Par	rogate Decachlorobiphenyl		(%) 62		36 (%)	-	43 (%)	%) 98	-	(%) 06		35 (%)	84	(%	26 (%)		S	112 (%	0	87 (%)		75 (%)	2	1 (%)	6) 29	:	
10013 10014 1001	Analyte	Reporting Limit (soil)			DWB-23a														la DWB-28at	DWB-							DWB-
No. No.	DMATC & TOTAL PURGEABLE	(magain)			(mesha)														(margin)	(medes)							
Mail Contist Mail	TROLEUM HYDROCARBONS	(200)	Puedo in	Bubio	(BuBin	-	-	L	H	(Page)	(20)	-	L	H	-	Russia	H	H	Pulpus -	(Pulpio	(949)	-	F	H	H	H	H
Maria Mari	O COLOR	0000	É		Ci 4		Ci d	G.		<u>C</u>		Ci	1		1		Ci	-		<u>C</u>		0 1		-	1		
No. No.	alazi	0.013	2 9		2 9		2 9	2 2		2 2		2 2	2 2		2 2		2 2	2 2		2 2		2 2		2 9	N		
1	Dene	5100	ON C		N i	l	ON S	Q i		ON S		2 4	2 3		2 5		ON OF	2 5		2 5		ON C		ON C	2 5		
No. No.	yibelizerie	0.013	2 9		2 2		2 9	2 2		2 2		N N	2 2		2 2		2 2	2 2		2		016		Q 9	N		
NO NO NO NO NO NO NO NO	Mariana Distriction	200	Q :		2 1	Ì	ON S	ON S	-	ON S	Ì	N S	2 3		2 5			ON 1		0.10		0.10		N G	N :		
The control	myl terr-butyl Ether (MTBE)	0.63	2		2 4	l		2 5	1	2 2		2 5	z	0 0	Q S		2 5	2 5		2 9		2 5		ON C	2 2		
Preporting DNB DWB DWB DWB DWB DWB DWB DWB DWB DWB DWB DWB DWB	rogate 4-BFB (PID)		05 (%)		28 (%)	7	ND (%)	%) 69	-	(%) 69		ND 84 (%)	92	(%)	(%) 66		37 (%)	27 (%)		122 (%)		31 (%)	9	8(%)	72.6		
Milay 1964		Reporting	-		- GO GIANG	DWB-	1		1	4	1			1	-	DWB-	1		1000	DWB-	1	1	1	1	1	1	DWB-
		Limit (soil)			DWB-23a	73an										76bh			a DWB-28ar	78D							
		(mg/g)		maka	(maka)		Н		-	-	(mgt.)			Н		maka			(Drugus)	(mg/kg)	(mg/g)			-			(the first)

TPH: Total Petroleum Hydrocarbons

ND: None Detected at Reporting Limit

ND. A result could not be established due to matrix interference.

mg/kg. milligeams/klogam= parts per million

pg/L microgram/klogam= parts per billion

"Reporting Limit - 10 mg/kg

SOIL SAMPLE RESULTS
Organophosphorus Pesticides & Semivolitile Organic Compounds

Analyte ORGANOPHOSPHORUS PESTICIDES Chlorpyrifos (Dursban) Coumaphos Demeton (O.8.8) Diszinon Dehlorvos	Limit (soil)	מני מואים	DWB-22a 22ah 23a	23a 23ah	24b1 24bh1	24b2	24bh2 DWB-25a	-25a 25ah	25b 25bh	26a	26ah 26	26b 26bl	26bh DWB-27a 27ah [h DWB-28a	28ah	28b1 2	28bh1 28b2	28bh2	DWB-29a 29	29ah DWB-29b 29bh	
ORGANOPHOSPHORUS PESTICII Chlorpyrics (Dursban) Coumaphos Demelon (0.8.5) Diezinon	Anna Ann	UWD-22a																		two (market)	
ORGANOPHOSPHORUS PESTICII Cournaphos (Dursban) Cournaphos Denneton (O.K.S.) Diezinon		(@y6m)	(mgNg) (m	(mg/kg) (mg/kg)	(@g@u)		(mgkg) (mgkg)			(ByBu)		ghg) (mg/k _i	a) (mg/kg) (mg/k	(mg/g)						Market Mark	mg/kg) (mg/kg)
Chlorpyrifos (Dursban) Cournaphos Demeton (O. & S.) Diazinon Dichlorvos	DES			-					-			-							=	-	
Cournaphos Demeton (O & S) Diazinon Dichlorvos	4	QN		QN	9	2	QN	0	Q	QN	_	QN	QN	Q		Q	2		QN	Q	
Demeton (O & S) Diazinon Dichlorvos	20	QN	_	Q	g	2	Z	QN	Q	Q	_	Q.	QN	Q		Q	2		Q	2	
Diazinon Dichlovos	4	Q	-	ND	Q	Q	Q	0	QN	ND	_	Q.	QN	ND		ND	Q	0	ND	Q	
Dichlorvos	4	QN	-	ND	Q	Q	Z	0	QN	ND	_	Q.	ND	QN		ND	Ä	0	QN	Q	
	4	Q	_	QN	9	Q	Q	0	Q	Q	2	QN	Q	Q		Q	8		QN	2	
Disultoton (Di-Syston)	70	QN	_	QN	QV	Q	QN		QN	QN	Z	QN	QN	QN		QN	Q	0	QN	2	
Ethoprophos (Prophos)	20	QN	_	QN	9	QN	QN	0	QN	QN	Z	OI.	QN	QN		QN	9		QN	Q	
	10	QV	_	QN	g	Q	QN	0	Q	QN	Z	O.	QN	Q		QN	2		QN	Q	
Perthion	4	Q	_	QN	g	Q	QN	0	QN	QN	Z	QN	QN	QN		ON	Q	0	QN	Q	
	20	QN	_	ND	Q	Q	QN		QN	QN	Z	0	QN	QN		ND	Q	0	QN	R	
Merohos	20	QV	_	QN	9	2	QN)	Q	Q	2	Q	QV	R		QN	2		QN	Q	
Parathion methyl	20	Q		QN	9	2	Q)	QV	QN	2	Q	2	QN		QN	2		QN	2	
Nalad (Dibrom)	0.2	S		QN.	£	2	S		CN	QN	2	- R	S	QV		QN	2		QN	9	
	2 -	2		- UN	2		2		9	- GN	. 2		2	2	l	- CN	IN			2	
Phorate (I nimet)	4	2		ON I	2 !	2 :	Z :		ON :	ON :		Q :	ON :	ON :		ON :	Q !		ON :	Q. i	
Mevinphos (Phosdrin)	20	Q		QN	Q	Q	9	0	QN	QN	_	Q	QN	QN		QN	2		QN	Q	
Ronnel (Fenchlorophos)	4	QN	_	QN	Q	Q	QN	0	QN	QN	_	QN	QN	QN		ND	Q	0	QN	Q	
Bolstar (Sulprofos)	10	ND	-	ND	QN	ND	QN	0	ND	ND	_	ND	ND	ND		ND	ND	0	ND	ND	
Stirophos (Tetrachlorvinphos)	4	Q	_	QN	9	9	2	0	Q	Q	Z	Q	Q	Q		Q	Q		QN	2	
Tokuthion (Prothiofos)	4	QN	1	QN	QN	Q	QN		QN	QN	Z	QN	QN	QN		QN	QN		QN	QN	
Trichloronate	10	QN	_	QN	Q	QV	QN		QN	QN	Z	QN	QN	QN		QN	QN		QN	R	
Surrogate-Tributylphosphate		342 (%)	97	64 (%)	77 (%)	(%) 06	322 (%)	(%)	SC	91 (%)	89	(%) 89	316 (%)	(%) 989	9	356 (%)	320 (%)		366 (%)	179 (%)	
Surrogate-Triphenylphosphate		72 (%)	12.	121 (%)	(%) 09	75 (%)	131(%)	(%)	S	83 (%)	4	(%)	S	1,270 (%)	-	133 (%)	126 (%)		105 (%)	(%) 62	
Analyte	Reporting Limit (soil)	DWB-22a 22ah		DWB- DWB- 23a 23ah	- DWB- DWB- 24b1 24bh1	3- DWB-	DWB- 24bh2 DWB-29	DWB-25a 25ah	DWB- DWB- 25b 25bh	B- DWB-	DWB- DW 26ah 26	DWB- DWB- 26b 26bh	DWB- DWB-27a 27ah	ah DWB-28a	DWB- 28ah	DWB- D	DWB- DWB- 28bh1 28b2	DWB- 28bh2	DWB-29a 29	DWB- DWB-29h 29h	DWB- DWB- 29bh 29EB
SEMIVOLATILE ORGANIC COMPOUNDS	UNDS				(Bubu)								(BuBuh		Bushi						
Acenaphtene	20	QN		QN	Q	9	Q	0	QN	QN	Z	Q.	QN	QN		QN	N		QN	R	
Acenaphthylene	20	Q	-	QN	Q	Q	9	0	QN	QN	Z	QN	QN	QN		QN	Q		QN	Q	
Anthracene	20	QN	1	ND	QN	QN	QN	0	ND	ND	2	ND	QN	ON		ND	ND	(ND	ND	
Benzo(a)anthracene	20	Q	_	QN	g	2	Q	0	Q	Q	Z	Q	Q	Q		Q	2		Q	2	
Benzo(b)fluoranthene	20	Q	_	QN	9	9	2	0	Q	Q	Z	Q	Q	Q		Q	2		QN	2	
Benzo(k)fluoranthene	20	Q	_	QN	9	Q	Q	0	Q	Q	2	Q	Q	Q		Q	8		QN	2	
Benzo(ghi)perylene	20	ND	1	ND	QN	QN	ND	0	ND	ND	~	ND	ND	ND		ND	ND)	ND	ND	
Benzo(a)pyrene	20	QN	-	ND	Q	Q	QN	0	QN	ND	_	QN	ND	QN		ND	Q	0	QN	Q	
Chrysene	20	QN	_	ND	Q	9	Q	0	QN	ND	_	QN	ND	QN		QN	QV	0	ND	Q	
Dibenzo(a,h)anthracene	20	QV	_	QN	9	2	QN	0	Q	Q	_	Q	Q	Q		Q	2		Q	Q	
Fluoranthene	20	QN	-	QN	QV	QN	QN		QN	QN	2	QN	QN	QN		QN	QN		QN	QN	
Fluorene	20	QN	4	QN	QN	QN	QN		QN	QN	Z	QN	QN	QN		QN	QN	0	QN	QN	
Indeno(1,2,3-cd)pyrene	20	QN	4	QN	QV	QN	QN	0	QN	QN	Z	QN	QN	QN		QN	QN	0	QN	QN	
Napthalene	20	Q	_	QN	9	9	2	0	Q	Q	Z	Q	Q	Q		Q	Q		QN	2	
Phenanthrene	20	ND	1	ND	QN	ND	ND	0	ND	ND	2	ND	ND	ND		ND	ND)	ND	ND	
Pyrene	20	ND	Į.	ND	ND	QN	ON	0	ND	ND	2	ND	ND	ON		ND	ND		ND	ND	
Surrogate Nitrobenzene-d5		85 (%)	74	74 (%)	73 (%)	81 (%)	77 (%)	(%.	(%) 29	(%) 62	82	85 (%)	84 (%)	84 (%)	_	112 (%)	187 (%)		62 (%)	86 (%)	
Surrogate 2-Fuorobiphenyl		120 (%)	10.	101 (%)	(%) 08	94 (%)	132 (%)	(%)	(%) 06	85 (%)	22	84 (%)	121 (%)	135 (%)	1	129 (%)	251 (%)		143 (%)	93 (%)	
Surrogate Terphenyl-d14		84 (%)	77	77 (%)	77 (%)	2 (%)	93 (%)	(%.	(%) 02	79 (%)	78	78 (%)	78 (%)	64 (%)	-	87 (%)	155 (%)		111 (%)	6 (%)	
Surrogate 2-Fuorophenol		(%) 89	61	61 (%)	63 (%)	(%) 59	71 (%)	(%)	54 (%)	59 (%)	63	63 (%)	77 (%)	71 (%)	-	(%) 99	144 (%)		(%) 92	(%) 59	
Surrogate Phenol-d6		(%) 98	73	73 (%)	73 (%)	76 (%)	85 (%)	(%.	67 (%)	74 (%)	79	(%) 62	94 (%)	88 (%)	,	91 (%)	185 (%)		88 (%)	82 (%)	
Surrogate 2,4,6-Tribromophenol		92 (%)	99	(%) 69	93 (%)	88 (%)	(%)	(%.	(%) 29	5 (%)	96	96 (%)	(%) 66	55 (%)	-	77 (%)	55 (%)		101 (%)	85 (%)	_

TPH: Total Petroleum Hydrocarbons ND: None Detected at Reporting Limit

NC: A result could not be calculated due to matrix interference.

mg/kg; milligrams/kilogram = parts per million µg/L: micrograms/liter = parts per billion *Reporting Limit - 10 mg/kg

SOIL SAMPLE RESULTS METALS

		Reporting																	
Analyte	Reporting Limit (Soil)	Limit (Water)	TTLC* for Metals	DWL- FB3	- DWL- FB4	DWL- 30a1	DWL- 30ah1	DWL- 30a2	DWL- 30ah2	DWL- 30b	DWL- 30bh	DWL-	DWL- 1	DWL- 31a	DWL- 31ah	DWL- 32a	DWL- 32ah	DWL- 32EB	LAB BLANK
•	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)					(mg/L)		(mg/kg)	
Antimony	2	0.006	200			ND		QN		ND		ND		ND		ND			
Arsenic	7	0.002	200			4		4		9		2		14		4			
Barium	7	0.1	10,000			110		110		140		28		170		130			
Beryllium	0.2	0.001	22			QN		QN		ND		ND		ND		ND			
Cadmium	0.2	0.001	1000			ΩN		QN		8.0		QN		QN		QN			
Hexavalent Chromium	0.5	0.01					QN		ND		ND		QN		QN		ND		ND
Total Chromium	1	0.01	2,500			70		50		20		7		38		17		ND	
Cobalt	0.4	0.01	8,000			8.5		8.8		8.9		3.8		13		8.1			
C opper	1	0.01	2,500			77		77		19		2		56		38			
Lead	1	0.005	1,000			20		17		8		2		10		52			
Mercury	0.02	0.001	20			0.08		0.15		0.08		ND		0.07		0.06			
Molybdenum	_	0.01	3,500			9		Q		Q.		Q.		-		17			
Nickel	7	0.01	2,000			24		54		21		1		46		17			
Selenium	2	0.005	100			ND		ND		ND		ND		ND		ND			
Silver	9.0	0.01	200			QN		QN		QV		QN		QN		QN			
Thallium	2	0.001	200			QN		QN		QV		QN		QN		QN			
Vanadinium	0.4	0.01	2,400			32		QV		31		17		26		38			
Zinc	4	0.01	5,000			190		32		310		17		61		210			
ND: None Detected at Reporting Limit	at Reporting	imit imit																	

ND: None Detected at Reporting Limit

mg/kg: milligrams/kilogram = parts per million

µg/L: micrograms/liter = parts per billion

^{*}Total Threshold Limit Concentration given in Title 22 California Code of Regulations, secion 66261.24

SOIL SAMPLE RESULTS

pH, Chlorinated Pesticides, PCBs, PAH, Oil & Grease

Analyte	Reporting Limit (soil)	DWL- FB3	DWL- FB4	DWL- 30a1	DWL- 30ah1	DWL- 30a2	DWL- 30ah2	DWL- 30b	DWL- 30bh	DWL-30c	DWL- 30ch	DWL-31a	DWL- 31ah	DWL-32a	DWL- 32ah	DWL- 32EB
рН	-	(2.11)	(4.3.33)	5.8	(3.111)	5.8	(411)	5.6	(2-23)	6.6	(2-23)	6	(4.14.5)	6.2	(=15)	(=,
	Reporting	DWL-	DWL-	DWL-	DWL-	DWL-	DWL-	DWL-	DWL-	DWI 20a	DWL-	DWI 210	DWL-	DWI 22a	DWL-	DWL-
Analyte CHLORINATED PESTICIDES	Limit (soil)	FB3	FB4	30a1	30ah1	30a2	30ah2	30b (mg/kg)	30bh (mg/kg)	DWL-30c	30ch	DWL-31a	31ah	DWL-32a	32ah	32EB (mg/kg)
Aldrin	0.3	(riging)	(mg/kg)	ND	(mg/kg)	ND.	(mg/kg)	ND.	(mg/kg)	ND	(mg/kg)	ND ND	(mg/kg)	ND	(mgng)	(riging)
alpha-BHC	0.3			ND		ND		ND		ND		ND		ND		<u> </u>
beta-BHC	0.3			ND		ND		ND		ND		ND		ND		
gamma-BHC (Lindane)	0.3			ND		ND		ND		ND		ND		ND		
delta-BHC	0.3			ND		ND		ND		ND		ND		ND		
Chlordane	0.6			ND		ND		ND		ND		ND		ND		
p,p'-DDD	0.3			ND		ND		ND		ND		0.049		ND		
p,p'-DDE	0.3			ND		ND		ND		ND		0.17		ND		
p,p'-DDT	0.3			ND		ND		ND		ND		0.089		ND		
Dieldrin	0.3			ND		ND		ND		ND		0.15		ND		
Endosulfan	0.3			ND		ND		ND		ND		ND		ND		
Endosulfan II	0.3			ND		ND		ND		ND		ND	1	ND		
Endosulfan Sulfate	0.3			ND		ND		ND		ND		ND	1	ND		
Endrin	0.3			ND		ND		ND		ND		ND	1	ND		
Endrin Aldehyde	0.3			ND		ND		ND		ND		ND	1	ND		
Endrin Ketone	0.3			ND		ND		ND		ND		ND	1	ND		
Heptachlor	0.3			ND		ND		ND		ND		ND		ND		
Heptachlor Epoxide	0.3			ND		ND		ND		ND		ND		ND		
Methoxychlor	0.3			ND		ND		ND		ND		ND		ND		
Toxaphene	0.0			ND		ND		ND		ND		ND		ND		
Surrogate TCMX				NC		139 (%)		NC		113 (%)		117 (%)		NC		
Surrogate Decachlorobiphenyl				NC	J	NC		NC		NC		165 (%)		287 (%)		
. Analyte	Reporting	DWL-	DWL-	DWL-	DWL-	DWL-	DWL-	DWL-	DWL-		DWL-		DWL-		DWL-	DWL-
Analyte	Limit (soil)	FB3	FB4	30a1	30ah1	30a2	30ah2	30b (mg/kg)	30bh (mg/kg)	DWL-30c	30ch	DWL-31a			32ah	32EB (mg/kg)
POLYCHLORINATED BEPHENYLS	(mg/kg)				30ah1 (mg/kg)	30a2 (mg/kg)	30ah2 (mg/kg)	30b (mg/kg)	30bh (mg/kg)	DWL-30c (mg/kg)	30ch (mg/L)	DWL-31a (mg/L)	31ah (mg/L)	DWL-32a (mg/kg)	32ah	32EB (mg/kg)
	(mg/kg)	FB3	FB4	30a1											32ah	
POLYCHLORINATED BEPHENYLS	(mg/kg)	FB3	FB4	30a1 (mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/L)		(mg/kg)	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016	(mg/kg) 0.04	FB3	FB4	30a1 (mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mgt.)		(mg/kg)	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221	0.04 0.04	FB3	FB4	30a1 (mg/kg) ND		(mg/kg) ND ND		(mg/kg) ND ND		(mg/kg) ND ND		(mg/L) ND ND		(mg/kg) ND ND	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248	0.04 0.04 0.04 0.04	FB3	FB4	ND ND ND ND ND ND		(mg/kg) ND ND ND		(mg/kg) ND ND ND ND ND		(mg/kg) ND ND		(mg/L) ND ND		(mg/kg) ND ND ND ND ND ND	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254	0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3	FB4	ND		ND		(mg/kg) ND ND ND ND ND ND ND		(mg/kg) ND ND ND ND ND ND ND ND ND		ND ND ND ND		ND	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260	0.04 0.04 0.04 0.04 0.04 0.04	FB3	FB4	ND N		ND		(mg/kg) ND ND ND ND ND ND ND ND ND N		(mg/kg) ND ND ND ND ND ND ND ND ND N		ND		ND	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX	0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3	FB4	30a1 (mg/kg) ND ND ND ND ND ND ND		(mg/kg) ND ND ND ND ND ND ND ND ND N		ND N		ND N		ND N		(mg/kg) ND ND ND ND ND ND ND ND ND N	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260	0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3	FB4	ND N		ND		(mg/kg) ND ND ND ND ND ND ND ND ND N		(mg/kg) ND ND ND ND ND ND ND ND ND N		ND		ND	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3 (mpkg)	FB4 (mg/kg)	30a1 (mg/kg) ND ND ND ND ND ND ND ND ND 100 (%)	(mg/kg)	ND ND ND ND ND ND ND ND	(mg/kg)	ND ND ND ND ND ND ND ND	(mg/kg)	ND N	(mgL)	ND N	(mg/L)	(mg/kg) ND ND ND ND ND ND ND ND ND N	32ah (mg/kg)	(mg/kg)
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX	0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3	FB4	30a1 (mg/kg) ND ND ND ND ND ND ND		(mg/kg) ND ND ND ND ND ND ND ND ND N		ND N		ND N		ND N	(mgl.)	(mg/kg) ND ND ND ND ND ND ND ND ND N	32ah	
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX Surrogate Decachlorobiphenyl	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3 (mpkg)	FB4 (mphq) DWL-FB4	30a1 (mphq) ND	(mg/kg) DWL- 30ah1	ND ND ND ND ND ND ND ND	(mg/kg) DWL- 30ah2	ND ND ND ND ND ND ND ND	DWL-30bh	(mpkg) ND ND ND ND ND ND ND ND DD S9 (%)	DWL- 30ch	(mg/L) ND ND ND ND ND ND ND ND Add (%)	DWL- 31ah	ND N	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3 (mpkg)	FB4 (mghq) DWL-FB4 (mghq)	30a1 (mykg) ND ND ND ND ND ND ND ND ND N	(mokg)	(mpkg) ND ND ND ND ND ND ND ND ND N	(mg/kg)	ND ND ND ND ND ND ND ND	(mg/kg)	(mpkg) ND ND ND ND ND ND ND ND ND PSP (%) 92 (%)	(mgil.)	(mg/L) ND ND ND ND ND ND ND ND Add (%)	(mgl.)	(mykg) ND ND ND ND ND ND 109 (%) 98 (%)	32ah (maka)	(mg/kg)
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	FB3 (mpkg) DWL-FB3 (mpkg) ND	DWL-FB4	30a1 (mphq) ND	(mg/kg) DWL- 30ah1	(mpkg) ND ND ND ND ND ND ND ND ND N	(mg/kg) DWL- 30ah2	(mg/kg) ND ND ND ND ND ND ND ND ND N	DWL-30bh	(mpkg) ND ND ND ND ND ND S9 (%) 92 (%) DWL-30c (mpkg)	DWL- 30ch	(mg/L) ND ND ND ND ND ND ND ND ND N	DWL- 31ah	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene Toluene	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	PB3 (moha) DWL-FB3 (moha) ND ND	DWL-FB4 (mpkg)	30a1 (mphq) ND N	(mg/kg) DWL- 30ah1	(mpkg) ND ND ND ND ND ND ND ND ND N	(mg/kg) DWL- 30ah2	(mg/kg) ND ND ND ND ND ND ND ND ND N	DWL-30bh	(mg/kg) ND ND ND ND ND ND ND ND DWL-30c (mg/kg)	DWL- 30ch	ND ND ND ND ND ND ND ND	DWL- 31ah	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene Toluene Ethylbenzene	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	PB3 (moha) DWL-FB3 (moha) ND ND ND	DWL-FB4 (mpkg)	30a1 (mpha) ND ND ND ND ND ND ND ND ND N	(mg/kg) DWL- 30ah1	(mpkg) ND ND ND ND ND ND ND ND ND N	(mg/kg) DWL- 30ah2	ND ND ND ND ND ND ND ND	DWL-30bh	(maka) ND ND ND ND ND S9 (%) 92 (%) DWL-30c (maka) ND 0.016 0.057	DWL- 30ch	ND ND ND ND ND ND ND ND	DWL- 31ah	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1222 PCB 1242 PCB 1248 PCB 1254 PCB 1254 Surrogate TCMX Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene Toluene Ethylbenzene Xylenes (Total)	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.013	PB3 (moha) DWL-FB3 (moha) ND ND ND	DWL-FB4 (mg/kg) ND ND ND ND ND	30a1 (mg/kg) ND ND ND ND ND ND ND ND ND N	(mg/kg) DWL- 30ah1	ND ND ND ND ND ND ND ND	(mg/kg) DWL- 30ah2	ND ND ND ND ND ND ND ND	DWL-30bh	(maka) ND ND ND ND ND ND S9 (%) 92 (%) DWL-30c (maka) ND 0.016 0.057	DWL- 30ch	(mgt) ND ND ND ND ND ND ND ND ND N	DWL- 31ah	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1254 PCB 1260 Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene Toluene Ethylbenzene Xylenes (Total) Methyl tert-Butyl Ether (MTBE)	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04	PB3 (moha) DWL- FB3 (moha) ND ND ND ND	DWL- FB4	30a1 (mphq) ND	(mg/kg) DWL- 30ah1	(mpkg) ND ND ND ND ND ND ND ND ND N	(mg/kg) DWL- 30ah2	ND ND ND ND ND ND ND ND	DWL-30bh	(maka) ND ND ND ND ND ND ND ND ND N	DWL- 30ch	(mpt) ND ND ND ND ND ND O(%) 44 (%) DWL-31a (mpt) ND ND ND ND ND ND ND ND ND N	DWL- 31ah	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene Toluene Ethylbenzene Xylenes (Total) Methyl tert-Butyl Ether (MTBE) Surrogate 4-BFB (FID)	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.013	DWL-FB3 (mpkg) ND ND ND ND ND 93 (%)	DWL-FB4 (mgAg) ND N	30a1 (mphq) ND	(mg/kg) DWL- 30ah1	(mpkg) ND ND ND ND ND S8 (%) 89 (%) DWL-30a2 (mpkg) ND 0.018 ND 0.041	(mg/kg) DWL- 30ah2	ND ND ND ND ND ND ND ND	DWL-30bh	(maka) ND ND ND ND ND ND ND ND ND N	DWL- 30ch	ND ND ND ND ND ND ND ND	DWL- 31ah	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1254 PCB 1260 Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene Toluene Ethylbenzene Xylenes (Total) Methyl tert-Butyl Ether (MTBE)	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.013	PB3 (moha) DWL- FB3 (moha) ND ND ND ND	DWL- FB4	30a1 (mphq) ND	(mg/kg) DWL- 30ah1	(mpkg) ND ND ND ND ND ND ND ND ND N	(mg/kg) DWL- 30ah2	ND ND ND ND ND ND ND ND	DWL-30bh	(maka) ND ND ND ND ND ND ND ND ND N	DWL- 30ch	(mpt) ND ND ND ND ND ND O(%) 44 (%) DWL-31a (mpt) ND ND ND ND ND ND ND ND ND N	DWL- 31ah	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB
POLYCHLORINATED BEPHENYLS PCB 1016 PCB 1221 PCB 1232 PCB 1242 PCB 1248 PCB 1254 PCB 1260 Surrogate TCMX Surrogate TCMX Surrogate Decachlorobiphenyl Analyte AROMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS Benzene Toluene Ethylbenzene Xylenes (Total) Methyl tert-Butyl Ether (MTBE) Surrogate 4-BFB (FID)	0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.013	DWL-FB3 (mpkg) ND ND ND ND ND 93 (%)	DWL-FB4 (mgAg) ND N	30a1 (mphq) ND	(mg/kg) DWL- 30ah1	(mpkg) ND ND ND ND ND S8 (%) 89 (%) DWL-30a2 (mpkg) ND 0.018 ND 0.041	(mg/kg) DWL- 30ah2	ND ND ND ND ND ND ND ND	DWL-30bh	(maka) ND ND ND ND ND ND ND ND ND N	DWL- 30ch	(mg/L) ND ND ND ND ND ND ND ND ND N	DWL-31ah (mgt.)	ND ND ND ND ND ND ND ND	32ah (mg/kg)	DWL- 32EB

TPH: Total Petroleum Hydrocarbons

ND: None Detected at Reporting Limit

NC: A result could not be calculated due to matrix interference.

mg/kg: millligrams/kilogram = parts per million

 $[\]mu$ g/L: micrograms/liter = parts per billion

^{*}Reporting Limit - 10 mg/kg

SOIL SAMPLE RESULTS

Organophosphorus Pesticides & Semivolitile Organic Compounds

Analyte	Reporting Limit (soil)	DWL- FB3	DWL- FB4	DWL-30a1	DWL- 30ah1	DWL-30a2	DWL- 30ah2	DWL-30b	DWL- 30bh	DWL-30c	DWL- 30ch	DWL-31a	DWL- 31ah	DWL-32a	DWL- 32ah	DWL-
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg
ORGANOPHOSPHORUS PEST	ICIDES															
Chlorpyrifos (Dursban)	4			ND		ND		ND		ND		ND		ND		
Coumaphos	20			ND		ND		ND		ND		ND		ND		
Demeton (O & S)	4			ND		ND		ND		ND		ND		ND		
Diazinon	4			ND		ND		ND		ND		ND		ND		
Dichlorvos	4			ND		ND		ND		ND		ND		ND		
Disulfoton (Di-Syston)	70			ND		ND		ND		ND		ND		ND		
Ethoprophos (Prophos)	70			ND		ND		ND		ND		ND		ND		
Fensulfothion	10			ND		ND		ND		ND		ND		ND		
Fenthion	4			ND		ND		ND		ND		ND		ND		
Azinphos methy (Guthion)	20			ND		ND		ND		ND		ND		ND		
Merphos	20			ND		ND		ND		ND		ND		ND		
Parathion methyl	70			ND		ND		ND		ND		ND		ND		
Naled (Dibrom)	70			ND		ND		ND		ND		ND		ND		
Phorate (Thimet)	4			ND		ND		ND		ND		ND		ND		
Mevinphos (Phosdrin)	20			ND		ND		ND		ND		ND		ND		
Ronnel (Fenchlorophos)	4			ND		ND		ND		ND		ND		ND		
Bolstar (Sulprofos)	10			ND		ND		ND		ND		ND		ND		
Stirophos (Tetrachlorvinphos)	4			ND		ND		ND		ND		ND		ND		
Tokuthion (Prothiofos)	4			ND		ND		ND		ND		ND		ND		
Trichloronate	10			ND		ND		ND		ND		ND		ND		
Surrogate-Tributylphosphate				NC		NC		NC		93 (%)		156 (%)		353 (%)		
Surrogate-Triphenylphosphate				494 (%)		500 (%)		502 (%)		88 (%)		45 (%)		62 (%)		

Analyte	Reporting Limit (soil)	DWL- FB3	DWL- FB4	DWL-30a1	DWL- 30ah1	DWL-30a2	DWL- 30ah2	DWL-30b	DWL- 30bh	DWL-30c	DWL- 30ch	DWL-31a	DWL- 31ah	DWL-32a	DWL- 32ah	DWL- 32EB
_	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SEMIVOLATILE ORGANIC CO	OMPOUNDS															
Acenaphtene	50			ND		ND		ND		ND		ND		ND		
Acenaphthylene	50		•	ND		ND		ND		ND		ND		ND		
Anthracene	50			ND		ND		ND		ND		ND		ND		
Benzo(a)anthracene	50			ND		ND		ND		ND		ND		ND		
Benzo(b)fluoranthene	50			ND		ND		ND		ND		ND		ND		
Benzo(k)fluoranthene	50			ND		ND		ND		ND		ND		ND		
Benzo(ghi)perylene	50			ND		ND		ND		ND		ND		ND		
Benzo(a)pyrene	50			ND		ND		ND		ND		ND		ND		
Chrysene	50			ND		ND		ND		ND		ND		ND		
Dibenzo(a,h)anthracene	50			ND		ND		ND		ND		ND		ND		
Fluoranthene	50			ND		ND		ND		ND		ND		ND		
Fluorene	50			ND		ND		ND		ND		ND		ND		
Indeno(1,2,3-cd)pyrene	50			ND		ND		ND		ND		ND		ND		
Napthalene	50			ND		ND		ND		ND		ND		ND		
Phenanthrene	50			ND		ND		ND		ND		ND		ND		
Pyrene	50			ND		ND		ND		ND		ND		ND		
Surrogate Nitrobenzene-d5				103 (%)		90 (%)		89 (%)		86 (%)		83 (%)		94 (%)		
Surrogate 2-Fuorobiphenyl				143 (%)		115 (%)		108 (%)		110 (%)		87 (%)		137 (%)		
Surrogate Terphenyl-d14				75 (%)		60 (%)		64 (%)		61 (%)		67 (%)		94 (%)		
Surrogate 2-Fuorophenol				74 (%)		73 (%)		73 (%)		74 (%)		64 (%)		76 (%)		
Surrogate Phenol-d6				94 (%)		86 (%)		86 (%)		85 (%)		77 (%)		89 (%)		
Surrogate 2,4,6-Tribromophenol				65 (%)		69 (%)		74 (%)		65 (%)		92 (%)		97 (%)		

TPH: Total Petroleum Hydrocarbons

ND: None Detected at Reporting Limit

NC: A result could not be calculated due to matrix interference.

mg/kg: millligrams/kilogram = parts per million

μg/L: micrograms/liter = parts per billion

*Reporting Limit - 10 mg/kg

SOIL SAMPLE RESULTS METALS

		Reporting																														
	Reporting		TTLC* for	TTLC* for DWH- DWH- DWH- DWH- DWH- DWH- DWH- DWH-	- DWH- I	DWH- DW	H- DWH	- DWH- C	VO -HWC	VH- DWH- L	DWH- DWH-	PWH-	DWH- DWH-	₽WH	DWH- DWH-	-HWG	DWH- DW	DWH- DWH-	₽WH	DWH- DWH-	DWH	DWH- DWH-	H- DWH-		DWH- DWH- DWH- DWH-	1-HMC+	DWH- DWH-	-HMG	DWH- DWH-	DWH- DWH- DWH-	- DWH- DWH-	+ DWH-
Analyte	Limit (Soil)		Metals	1a 1ah	1b	1bh 2a	a 2ah	3p	2bh 3	3a 3ah	3b 3bh	4a	4ah 4b	4ph	5a 5ah	h 5b	5bh 6	6a 6ah	6b1 6t	6bh1 6b2	6bh2	7a 7ah	h 7b	7bh	8a 8ah	8b1	8bh1 8b	8b2 8bh2	9a 9ah	10a 10ah	11a 11ah	h EB
	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg) (mg/kg)	(mg/g)	(mgfig) (mgfig)	Ng) (mg/kg)	(mg/kg)	(mg/kg) (mg	(mg/kg) (mg/kg)	(mg/L) (mg/L)	(mg/L)	(mgkg) (mgkg)	(mg/kg)	(mg/kg) (mg/kg)	g) (mg/kg)	(mg/kg) (mg	(mgkg) (mgkg)	(mg/kg) (nr	(mg/L) (mg/kg)	(mg/kg)	(mg/g) (mg/g)	g) (mg/kg)	(mgfg) ((mgkg) (mgkg)	g) (mg/kg)	(mg/kg)	ļ				
Antimony	2	900'0	200	QN	2	2	2	Q	Z	QN	Q	2	2		Q	2	z	Q.	Q	Q.		Q.	Q		Q.	Q	z	Q	Q	Q	Q	Q
Arsenic	-	0.002	200	3	9	2		4		2	1	2	3		3	3	ì	3	QN	QN		2	2		2	1		2	3	2	2	Q
Barium	1	0.1	10,000	44	98	28	3	7.0	2	25	27	30	35		41	36	4	47	18	19		36	19		39	28	27	7	36	24	33	Q
Berylium	0.2	0.001	22	0.2	0.3	QN	2	QN	Z	QN	QN	Q	Q		QN	Q	Z	QN	QN	QN		QN	QN		QN	QN	z	Q.	QN	QN	QV	QN
Cadmium	0.2	0.001	1000	1.3	QN	QN	2	QN	Z	QN	QN	Q	Q		QN	Q	Z	QN	QN	QN		QN	QN		6.0	QN	z	QN	QN	QN	QV	Q
Hexavalent Chromium	-	0.01		QN		QN	QN		QN	Q	QN		Q.	QN	QN	_	QN	QN		QN	QN	Q		Q	QN		QN	QN	QN	QN	QN	
Total Chromium	1	0.01	2,500	13	23	6		17	,	6	11	6	10		10	11	-	11	11	11		6	9		10	11	-	10	10	8	7	QN
Cobalt	0.4	0.01	8,000	3.2	6.3	2.6	9	3.8	2	2.3	3.6	2.5	2.5		2.5	2.8	2	2.2	2.2	2.3	, ,	2.5	2.7		2.3	2.3	2	2.2	2.8	2.5	2	Q
Copper	1	0.01	2,500	10	59	4		16		3	4	3	4		8	4	-	14	3	3		11	4		8	3	.,	3	2	ю	8	Q
Lead	1	0.005	1,000	20	31	3		18		2	2	8	3		8	4	-	13	2	2		16	3		6	3	.,	3	3	2	2	Q
Mercury	0.02	0.001	20	QN	0.04	QN	2	0.03	Z	QN	QN	Q	QN		QN	Q	Z	QN QN	QN	QN		QN	QN		QN	QN	Z	QN	QN	QV	QV	QN
Molybdenum	-	0.01	3,500	2	4	ON	2	3	Z	ND	ND	QN	1		1	Q		2	QN	QN		QN	ND		ND	QN	Z	N ON	ND	QN	QN	QN
Nickel	-	0.01	2,000	13	23	10)	19	,	6	13	10	11		11	12	1	10	6	10		10	10		10	10	10	0	11	10	6	Q
Selenium	2	0.005	100	ND	ND	ND	2	QN	Z	ND	ND	Q	QN		ND	Q	Z	ND	QN	ND		ND	ND		ND	Q	ND	0	ND	QN	ND	Q
Silver	9.0	0.01	500	ND	ND	ND	2	QN	Z	ND	ND	Q	QN		ND	Q	Z	ND	QN	ND		ND	ND		ND	Q	z	ND	ND	QN	ND	Q
Thallium	2	0.001	700	16	9	2	_	2	Z	Q	Q	2	2		Q	2	z	Q.	2	2		Q.	Q		Q	Q	z	Q.	Q	P	Q	Q
Vanadinium	0.4	0.01	2,400	530	36	13	3	30	-	12	18	13	15		13	15	-	10	17	18		11	13		12	13	_	13	15	12	Ξ	Q
Zinc	4	0.01	5,000	4.6	310	35	2	89	-	15	+	35	6		290	45	36	360	12	10	"	200	13		43	7	+	_	16	13	Ξ	2

ND: None Detected at Reporting Limit mgKg: millignams/klogram = parts per million ygL: micrograms/itter = parts per billion ygL: micrograms/itter = parts per billion Title 22 California Code of Regulators, secton 66261.24 **Total Threshold Limit Concentration given in Title 22 California Code of Regulators, secton 66261.24

SOIL SAMPLE RESULTS

PH, Chlorinated Pesticides, PCBs, PAH, Oil & Grease

Analyte	Reporting Limit (soil)	DWH-1a 1.1	DWH- 1ah DWH-1b 1bh DWH-2b John John John John John John John John	DWH-DWH-2a (unta) (unta) (unta)	DWH- 2ah DWH-2b (onth) (orth)	DWH- DWH- Zbh 3a (orth) (orth) 7.6	3ah 3b 3bh (unta) (unta) (unta) (unta)	DWH4a (orte)	DWH- DWH-4b 4 (orts) (orts) 7.6	DWH-4b 4bh DWH-5a E (cres) (cr	DWH- DWH- D 5ah 5b (orth) (orth) 7.8	5bh DWH-6ah DWH-6ah	6b1 (orte) 8.0	DWH- DWH- DV 6bh1 6bb (wms) (wms) (wms) (wms)	DWH- DWH- 6bh2 7a DWH-7ah 6mb (onto) (onto) 6.55	DWH- DWH- 7b 7bh (orth) (orth)	DWH- DWH- 8a 8ah (onta) (onta) 7	DWH- DWH- 8b1 8bh1 (vrtb) 7.9	8b2 8bh2	9a 9ah 1 6.9	DWH- DWH- DWH- 10a 10ah 11a 6.7 7.1	1- DWH-	
Analyte	Reporting Limit (soil)	DWH-1a 1:	DWH- DWH- DWH- 1ah DWH-1b 1bh DWH-2a 2ah DWH-2b	WH- 1bh DWH-2a	DWH- 2ah DWH-2b	DWH- DWH- 2bh 3a	DWH- DWH- 3ah 3b	DWH- 3bh DWH-4a	DWH- DWH4b 4	DWH- DWH-5a (DWH- DWH- D 5ah 5b	DWH- 5bh DWH-6a DWH-6ah	DWH- 6b1	DWH- DWH- DV 6bh1 6b2 6t	DWH- DWH- 6bh2 7a DWH-7ah	DWH- DWH- 7b 7bh	DWH- DWH- 8a 8ah	DWH- DWH- 8b1 8bh1	DWH- DWH- 8b2 8bh2	DWH- DWH- DV 9a 9ah 1	DWH- DWH- DWH- 10a 10ah 11a	4- DWH- 1 11ah	
CHLORINATED PESTICIDES Addin	0.006	ND Ometon	makan (maka) (m	makan makan	One of the original of the ori	makan makan	(makan) (mahan)	makan makan r	makan makan m	o oraka) oraka	One or	makan omakan om	makan (maha) (ma	makao makao m	ahan frahan oraka ND	Overlan overlan	makan anakan ND	mahan andana ND	Ong Agg Omg/g)	ND makes oranges or	makan transa orana ND ND	0 (mg 4g)	
alpha-BHC	900.0	QV	QN	QV	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	Q	QN	QV	<u> </u>			
beta-BHC	900:0	QN	QN	ND	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	QN	N	ND	QN	ND ON	QN		
y gamma-BHC (Lindane)	9000	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	ND	QN	ND ON	QV		
	90000	QV	QN	Q	QN	Q	QN	QV	QN	QV	QN	QN	Q	Q	Q	QN	Q	Q	Q				
Chlordane	0.012	9 S	9 9	Q Q	9 9	Q Q	Q 8	Q R	Q Q	Q 9	9 9	Q Q	Q Q	9 8	Q Q	9 S	Q &	Q &	9 9	Q Q	Q Q		
p,p-DDE	0.150	Q.	0.045	2 2	0.35	2 2	QN ON	g Q	2 2	Q.	9 9	QN QN	Q. Q.	2 2	QN QN	2 2	2 2	2 2	2 2				
p,p'-DDT	900:0	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	QN	0.036	QN	QN	- QN	QN QN		
Dieldrin	0.150	QV	0.34	Q	1.5	Q	QN	QN	QN	QN	QV	QN	QN	Q	QN	Q	Q	QN	QN	N ON	Q Q		
Endosulfan	90.00	Q S	9 9	2 5	9 9	2 5	QN GN	0.165	2	QN G	9 9	Q S	QN SA	2 9	ON S	2 9	9 9	9 9	Q S	9 9			
Endosulfan II Endosulfan Sulfate	90000	Q Q	8 8	Q Q	2 2	QN QN	2	Q Q	2	Q Q	2 2	QN QN	Q Q	2 2	Q Q	2 2	2 2	9 9	2 2	QN QN			
Endrin	9000	Q	Q.	Q.	Q.	2	QN	QN .	Q.	Q.	9	QN ON	QN ON	9	QN ON	9	Q.	Q. Q.	Q.	9	QN QN		
Endrin Aldehyde	90000	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	QV	QN	QN	QN	N ON	QN QN		
Endrin Ketone	0.006	QV S	QN EN	Q S	0.022	QN S	Q F	QN S	Q N	QN S	9 4	QN S	QN S	9 5	QN S	9	ON S	ON EN	9 4	QV S	QN SN		
Hentachlor Froxida	0.006	2 8	QN GN	2 2	Q Q	2 2	G S	Q CN	R N	g S	g S	2 8	2 8	Q Q	2 2	2 2	2 8	2 2	S S				
Methoxychlor	9000	2 2	QN	2 2	QN ON	9	QN QN	QV	Q.	2 2	2 2	Q	9	2 2	2	QV	9	9	2 2	9	QN QN		
Toxaphene	0.040	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	QN	QN	QN	QN				
Surrogate TCMX		101 (%)	116 (%)	101 (%)	100 (%)	NC	48 (%)		97 (%)	107 (%)	74 (%)	470 (%)	110 (%)	91 (%)	770 (%)	114 (%)	104 (%)	105 (%)				%)	
Surrogate Decachlorobiphenyl		92 (%)	108 (%)	98 (%)	128 (%)	48 (%)	46 (%)	199 (%)	(%) 68	NC	82 (%)	NC	(%) 29	78 (%)	NC	57 (%)	88 (%)	97 (%)	100 (%)	56 (%)	61 (%) 88 (%)	(9)	
Analyte	Reporting Limit (soil)	DWH-1a 1:	DWH- DWH- DWH-11 15h DWH-2b	DWH- DWH-2a	DWH- D 2ah DWH-2b	DWH- DWH- 2bh 3a	DWH- DWH- DWH- 3ah 3b 3bh	DWH-4a	DWH- DWH-4b 4	DWH- D'WH-5a (DWH- DWH- D	DWH- DWH- 5b 5bh DWH-6a DWH-6ah	DWH-	DWH- DWH- DV 6bh1 6b2 6t	DWH- DWH- 6bh2 7a DWH-7ah	DWH- DWH- DWH- DWH- DWH- 75 7bh 8a 8ah 8b1	DWH- DWH- 8a 8ah	DWH-	DWH- DWH- 8b2 8bh2	DWH- DWH- DWH- DWH- 9a 9ah 10a 10ah	/H- DWH- DWH- la 10ah 11a	н- DWH- 1 11ah	
o Symmon and Chinese Con	(mayan)	(mgAg) (mg	(mg/kgi) (mg/kgi) (m	(mgkg) (mgkg)	(mg/kg) (mg/kg) (Отффа	(mgt.) (mgt.)	(mgt) (mgtg) ((mgkg) (mgkg) (m	(mgf.)	(mg Aqg)	(mgkgi) (mgkgi) (mgkgi)	(maka) (maka)	(mg kgn) (mg kgn)	(mgkg)	(pright) (pright)	mgAgn (mgAgn (r	(mgkg) (mgkg) (mgkg)	(0.00 A(Q)	
POLYCHLORINATED BEPHENYL PCB 1016	s- 00	S	S	GN	S	S	CN	CN	S	CN	S	CN	CN	S	CN	S	S	S	CN	S	CN		
PCB 1221	0.02	2 8	Q Q	2 8	Q Q	2 2	GN CN	Q CN	R 8	Q Q	g g	S S	2 8	2 8	2 8	2 2	2 8	2 2	Z S				
PCB 1232	0.02	Q	Q	QN	QN	Q	QN	Q.	QN	QN	Q	QN .	QN .	Q	Q.	Q	Q	Q.	Q.				
PCB 1242	0.02	QV	QN	ND	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	QN	N	QN	QN	ND ON	QN Q		
PCB 1248	0.02	QV	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	- Qu	QN Q		
PCB 1254	0.02	QN	QN	QN	QN	QN	QN	QN	QN	QN	QV	QN	QV	Q	QN	QN	QV	QN	QN	N ON	QN		
PCB 1260	0.02	Q	Q	2	Q.	2	QN See		QN S	Q	Q.	QN	Q S	Q S	Q.	2	2	Q S				i i	
Surrogate TCMX Surrogate Decachlorobiphenyl		97 (%)	82 (%) 95 (%)	85 (%) 94 (%)	/8 (%) 85 (%)	35 (%)	94 (%)	102 (%)	103 (%)	72 (%)	64 (%)	113 (%)	69 (%)	68 (%)	103 (%)	/0 (%) 84 (%)	69 (%)	73 (%)	78 (%)	59 (%) 59	59 (%) 73 (%)	(9)	
	Reporting	۵	MH- DV	WH-	DWH- DWH- DWH- DWH-	WH- DWH-	DWH-	DWH- DWH- D	DWH. D		DWH- DWH- D	DWH- DWH-	DWH-	DWH- DWH- DV	DWH- DWH- DWH-		DWH- DWH-	DWH- DWH-	DWH- DWH-	WH- DWH- D	/H- DWH- DW	DWH DWH- DWH- DWH	WH
Analyte AROMATC & TOTAL	Limit (soil)	DWH-1a 1	tah DWH-1b	1bh DWH-2a	2ah DWH-2b	2bh 3a	3ah			DWH-5a		5bh DWH-6a DW	199	h1 6b2 6t	oh2 7a DWH-7ah		8a 8ah	8b1 8bh1	8b2 8bh2	9a 9ah 1	Ja 10ah 11	11ah F1 F2	. E
PURGEABLE PETROLEUM HYDROCARBONS	(phippin)	(mgAgn) (mg	m) (mgkg) (m	(mgAgg) (mgAgg)	fraha) (maha) ((mghg) (mghg)	(mgt) (mg4)	(mgt.) (mgtg) ()	(mgkg) (mgkg) (n	(mg/g) (mg/g) (r	Ompleto (meleto)	(mgkg) (mg kg) (m	(mgkg) (mgkg) (mc	(mgAgn) (mgAgn) (m	(mgkg) (mgkg) (mgkg)	(mghg)							
Benzene	0.0025	QV	Q	QN	Q	QN	QN	QN	QV	QN	QV	QN	QN	Q	QN	QN	Q	Q	Q	QN	9	QV	9
Toluene	0.0025	2 2	2 2	2 2	2 2	2 2	Q. Q.	g Q	2 2	2 2	2 2	2 0	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	9
Ethylbenzene	0.0025	QV	QN	QV	QN	Q	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	Q	Q	QN	- Qu	Z	QN	9
Xylenes (Total)	0.0025	QN	QN	QN	QN	0.26	ND	QN	QN	ND	QN	QN	QN	QN	ND	ND	ND	ND	ND	ND	ND ON		Q
Methyl tert-Butyl Ether (MTBE)	0.125	QN	QN	QN	QN	QN	ND		QN	QN	QN	QN	QN	QN	ND		N ON					QN	9
Surrogate 4-BFB (PID)		103 (%)	102 (%)	100 (%)	112 (%)	95 (%)	94 (%)	108 (%)	101 (%)	138 (%)	(%) 66	132 (%)	72 (%)	72 (%)	129 (%)	71 (%)	65 (%)	70 (%)	64 (%) 7	70 (%)	95 (%)	(9) 85 (%) 82 (%)	(%)
	1	Ž	7	-	7	3	7			3	3	7	3	2	7	7	7	7	7	2	3		
Analyte	Limit (soil)	_	Tah DWH-1b	1bh DWH-2a	DWH-2b	S S		DWH-4a		DWH-5a	8	DWH-6a DV	6 5	6b2	ra Z	- Adr	8a 8ah	8b1 8bh1	8b2 8bh2	9a 9ah 1	10a 10ah 11a	- 11ah	
Oil & Grease	10	mgAgn) (m	192 (mg/kg) (m	(mgkg) (mgkg)	ND (mg/gm)	(mg)g) (mg/g)	(mgt.) (mgt.)	ND (mg/g) (mg/g)	75.600 makes on	(mg/g) (mg/g) (r	(mg/kg) (mg/kg) ((mg4g) (mg4g) (m	109 000 (mg/kg) (mg	153 (mg kg) (m	129 makgi (makgi) (makgi)	(mg/g))	930	CN	S	S	CN	£	
Oll & Grogod	2	•			ND.		ono, Lo										25 %	NC	ND	UN	UND	Sa.	

TPH: Total Petroleum Hydrocarbons
ND: None Detected at Reporting Limit
NC; A result could not be obsculated due to matrix interference,
mg/sg, militigians/skoleum = parts per million
1940; micrograme/site = parts per billion
78eporting Limit - 10 mg/sg

DELTA WETLANDS / IN-DELTA STORAGE, PHASE II ESA HOLLAND ISLAND

SOIL SAMPLE RESULTS
Pesticides, Organics, Inorganics

Analyle	Reporting Limit (soil)	DWH-1a 1ah	DWH- DWF.	4- DWH- DWF	DWH- DWH- DWH- DWH- DWH- DWH- DWH- 1ah 1b 1bh 2a 2ah 2b 2bh	DWH-3a	DWH- DWH- DWH-	+ DWH- DWH-	DWH-4b 4bh	DWH-5a	- DWH-	DWH- 5bh DWH-6a 6ah	-PWH-	DWH- DWH- DW 6bh1 6b2 6b	DWH- DWH-7a 7	DWH- DWH- DW	DWH- DWH- DWH-	4- DWH- DWH-	DWH-	WH-9a	DWH- DWH- DWH-	DWH-	DWH- DWH- 11ah F1 F2
on famous a	(DigBu)		!	 	 		:	!			l					!		i			!	!	
ORGANOPHOSPHORUS PESTICIDES																							
Chlorpyrifos (Dursban)	8.0	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Coumaphos	4	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QV	QN	QN	QN	QN	QN	QN	
Demeton (O & S)	8:0	QN	Q	QN	QN	QN	QN	QN	ND	QN	QV	ND	QN	QN	QN	QN	QN	QN	QN	ON	QN	QN	
Diazinon	0.8	QN	Q	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QV	QN	QN	QN	ND	QN	QN	
Dichlorvos	0.8	QN	QN	QN	QN	QN	QN	QN	QN	QN	R	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	
Disulfoton (Di-Syston)	41	QN	QN	ND	ND	QN	QN	QN	ND	ND	Q	QN	QN	QN	QN	QV	QN	ND	ND	ND	QN	QN	
Ethoprophos (Prophos)	41	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Fensulfothion	2	QN	Q	QN	QN	QV	Q	Q	Q	QN	QN	QN	QN	QV	QV	Q	QN	QN	QN	ND	QN	QN	
Fenthion	0.8	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Azinphos methy (Guthion)	4	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Merphos	4	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	QN	QN	
Parathion methyl	41	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Naled (Dibrom)	41	QN	QN	ND	ND	QN	QN	QN	ND	ND	R	ND	QN	QN	QN	QN	QN	ND	ND	ND	QN	QN	
Phorate (Thirnet)	0.8	QN	QN	ND	ND	ND	ND	QN	ND	ND	N	ND	ND	QN	ND	QN	QN	ND	ND	ND	QN	QN	
Mevinphos (Phosdrin)	4	QN	Q	QN	QN	ND	QN	QN	ND	QN	N	ND	QN	QN	QN	QN	QN	ND	ND	QN	ON	QN	
Ronnel (Fenchlorophos)	0.8	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Bolstar (Sulprofos)	2	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Stirophos (Tetrachlorvinphos)	0.8	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	
Tokuthion (Prothiofos)	0.8	QN	Q	ND	ND	QN	ND	QN	ND	ND	ND	ND	ND	QN	ND	QV	QN	ND	ND	ND	ND	QN	
Trichloronate	2	QN	QN	ND	QN	QN	QN	QN	ND	QN	N	QN	QN	QN	QN	QN	QN	ND	QN	QN	QN	QN	
Surrogate-Tributylphosphate		44 (%)	NC	NC	NC	298 (%)	NC	NC	51 (%)	134 (%)	62 (%)	NC	58 (%)	62 (%)	188 (%)	80 (%)	26 (%)	(%) 59	(%) 89	54 (%)	(%) 99	26 (%)	
Surrogate-Triphenylphosphate		88 (%)	62 (%)	(%) 09	(%) 09	(%) 699	61 (%)	NC	27 (%)	NC	(%) 69	191 (%)	(%) 59	(%) 89	NC	92 (%)	70 (%)	70 (%)	71 (%)	64 (%)	67 (%)	(%) 09	
	Reporting	DWH-	DWH- DWF.	4- DWH- DW	DWH- DWH- DWH- DWH- DWH- DWH-		DWH-	DWH-			-DWH-		DWH-	DWH-		DWH-	- DWH-	DWH-	DWH-		DWH-	DWH-	DWH-
Analyte	Limit (soil)	DWH-1a 1ah	1b 1bi	. 2a 2a	29 C	2bh DWH-3a 3ah	h 3b 3bh	n 4a 4ah	DWH-4b 4bh	DWH-5a 5ah	ß	5bh DWH-6a 6ah	6b1	6bh1 6b2 6b	6bh2 DWH-7a 7	7ah 7b 7t	7bh 8a 8ah	861 8bh1	8b2	8bh2 DWH-9a 9ah	10a	10ah 11a 11ah	h F1 F2

7 E					_													(%	(%	(%)	(%)	(%	(%
4- DWH-		QN	86 (%)	87 (%)	103 (59 (75 (%)	86 (%)															
+ DWH-										_	_		_					(%	(%	(%)	(%)	(%)	(%
H- DWH-		QN	95 (%)	102 (%)	98 (78 (91 (66 (%)															
DWH-		0	0	0	0	0	0	0	0	0	0	0	0	0	0	_	_	(%)	(%)	(%)	(%)	(%)	(%)
DWH- 8bh2 DWH-9a		ND	QN	ON	QN	83 (82 (102	29	77 (81												
DWH- DV 8b2 8b		QN	(%)	83 (%)	(%)	(%)	76 (%)	72 (%)															
DWH- DV 8bh1 8			-		_	-		-	_	_	_	_	_	_	-	_	-	98	83	100 (63 (26	72
DWH- D 8b1 8		QN	86 (%)	(%) 98	95 (%)	46 (%)	76 (%)	77 (%)															
DWH- E																		8	8	9	4	7	7
DWH- 1 8a		QN	(%) 98	(%) 06	127 (%)	62 (%)	78 (%)	88 (%)															
DWH-																							
DWH-		QN	83 (%)	63 (%)	136 (%)	54 (%)	73 (%)	75 (%)															
DWH-																							
DWH-7a		QN	38 (%)	51 (%)	78 (%)	33 (%)	38 (%)	28 (%)															
DWH- 6bh2																		(,	_	,	
- DWH-		Q	2	Q	2	2	QN	2	2	QN	QN	8	QN	2	QN	QN	QN	(%) 06	(%) 06	78 (%)	(%) 69	84 (%)	96 (%)
- DWH- 6bh1																		(9	(9	(9)	(9	(9	(9
4- DWH-		QN	92 (%)	(%) 06	83 (%)	72 (%)	84 (%)	94 (%)															
-6a 6ah																		(%	(%	%)	(%	(%)	(%
H- DWH-6a		Q	QN	116 (%)	136 (%)	205 (%)	82 (%)	98 (80 (%)														
DWH- DWH- 5b 5bh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(%)	(%)	(%)	(%)	(%)	(%)
DWH- DW 5ah 5		QN	79	06	121	20	79	82 (%)															
DWH-5a 5		QN	13 (%)	16 (%)	26 (%)	11 (%)	13 (%)	12 (%)															
DWH- 4bh DW																		13	16	26	=	13	12
DWH-4b		QN	(%) 68	(%) 98	129 (%)	73 (%)	84 (%)	(%) 96															
DWH- 4ah D\																		8	8	13	7	8	6
DWH- [QN	34 (%)	42 (%)	54 (%)	29 (%)	34 (%)	21 (%)															
DWH- 3bh																							
3b		Q	Q	Q	Q	Q	QN	Q	Q	QN	QN	Q	QN	Q	QN	QN	QN	88 (%)	87 (%)	81 (%)	70 (%)	77 (%)	97 (%)
DWH-																			-)			
DWH-3g		Q	Q	Q	Q	Q	QN	Q	R	QN	QN	Q	QN	R	12	QN	QN	(%) 69	100 (%)	101 (%)	79 (%)	78 (%)	NC
DWH-)			_
. DWH-		QN	Q	QN	QN	Q	QN	Q	QN	QN	QN	94 (%)	94 (%)	103 (%)	76 (%)	86 (%)	101 (%)						
- DWH 2ah																		(9	(9	(9)	()	6)	(9
H- DWF h 2a		QN	(%) 98	(%) 98	88 (%)	72 (%)	83 (%)	91 (%)															
WH- DWI		Q.	Q	Q.	Q.	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q.	(%)	(%)	(%)	(%)	(%)	(%)
DWH- DWH- DWH- DWH- DWH- DWH- DWH- DWH-3a*		QN	84 (%)	(%) 98	95 (%)	(%) 89	79 (%)	(%) 06															
/H-1a 1		QN	91 (%)	63 (%)	129 (%)	73 (%)	86 (%)	(%) 06															
Δ		Ē	L	Ľ	Ľ	L	Ĺ	L	Ĺ			Ĺ		Ĺ				91	93	12.	2	86	96
Reporting Limit (soil)	(0.00,000)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33						

Pyrene Surrogale Néroberzene-d5 Surrogale E-Phonotophenyl Surrogale E-Phonophenol Surrogale 2-Leurophenol Surrogale Phenol-d6 Surrogale Phenol-d6

TPH: Total Periodeum Hydrocarbons
NC: None Detected at Reporting Limit
NC: A result, could not be advanted the ton matrix interference,
mg/st, milliogramskile op an = parts per million
jugit: microgramskiler; parts per billion
'Sample diluted due b.a high concentration of non-tagatianshiles)

SOIL SAMPLE RESULTS METALS

		Reporting																																	
Analyte	Keporting Limit (Soil)		Metals 12a 12ah 12b 12bh 13a 13ah	12a 1	12ah 12	12b 12bh	w. Dww.	w.Dww.	13b	13bh	14a 1	14ah 14	14b1 14l	14b2 14bh1	14bh1 14bh2 15a 15ah	w- Dww h2 15a	w. Dww 15ah	15b	15bh	16a 1	16ah 16b	16b 16bh	w. Dww.	18a	18ah	19a 1	19ah 20	20a1 20e	20ah1 20a2	a2 20ah2	w- Dww sh2 20b	w. Dww.	.Dww. 21a	21ah	EB .
	(mgkg)	(mg/L)	(mgAg)	(mg/kg)	(mgfig) (mg	(mg/kg) (mg/kg)	g) (mgkg)	(mg/kg)	(mg/kg)	(mg/kg)	(mgNg) ((mgkg) (m	(mg/L) (mg	(mg/L) (mg/L)	it) (mg/kg)	g (mgkg)	g (mg%g)	(mg/kg)	(mg/kg) ((mgNg) (n	(mgkg) (mg/	(mgNg) (mgNg)	g) (mg/kg)	(mg/kg)	(mg/L)	(mg/kg) ((mgAg) (m	(mg/kg) (mg	(mgkg) (mgkg)	Plg) (mgkg)	kg) (mg/kg)	3) (mg/kg)	(mg/kg)	(mgAg)	
Antimony	2	9000	200		Z	Q	2		2		Q	_	N ON	Q.		2		2		9	S S			2		Q	_	Q	z	Q.	2		Q		Q
Arsenic	-	0.002	200	3		1	4		2		3		3 2	2		4		37			,,	2		2		7		2	4	4	13		18		ND
Barium	-	0.1	10,000	9	-	14	31		38		31		16 1,	14		36		21		48	33	3		06		26	1	1500	15	1500	250		260		ND
Beryllium	0.2	0.001	75		Z	QN	2		QN		9		N ON	Q.		QN		Q		Q	QN			QN		QN		QN	Ž	QU	QV		QN		QN
Cadmium	0.2	0.001	1000	0.3	Z	QN	1.3		QN		Q		N QN	QN		QN		QN		QN	QN	0		QN		QN		QN	Q	٥	QN		QN		ND
Hexavalent Chromium	0.5	0.01			QN	QN		QN		QN		QN		QN	ON O		QN		QN		QN	Q	QN (QN		Q	Z	QN	QN	0	QN		QN	QN
Total Chromium	1	0.01	2,500		,	4	14		9		9		9	2		9		9		9	-	9		41		30		21	-	17	49		48		ND
Cobalt	9.0	0.01	8,000	1.6	1	1.7	1.8		2.4		1.8		1.6 1.	9.1		1.6		2		2.1	2.	2.3		13		8.9		5.1	.c.	5.5	8.1		8.2		ND
Copper	1	0.01	2,500	11		1	110		2		7			QN		3		-		3	,,	2		24		24		11	-	12	30		45		ND
read -1	-	0.005	1,000	7.5		2	2		2		1		2 1	_		9		2		3	,,	2		9		8		6	3	6	4		1		ND
Mercury	0.02	0.001	20		Z	QN	S		QN		QN	_	N ON	QN		QN		QN		QN	Z	QN		60'0		60.0	•	0.15	0.21	21	0.04		90.0		QN
Molybdenum	-	0.01	3,500		Z	QN	Q.		QN		Q		N QN	QN		QN		QN		QN	QN	0		QN		-		QN	z	Q	1		3		ND
Nickel	-	0.01	2,000	9		9	7		4		9		2	2		9		9		9				69		32		21	22	2	45		47		ND
Selenium	2	0.005	100		Z	QN	Q.		QN		Q		N QN	QN		QN		QN		QN	QN	0		QN		QN		QN	z	Q	QN		QN		ND
Silver	9.0	0.01	200		2	QN	2		QV		QN	_	N ON	QN		QN		QN		Q	Z	QN		QN		QN		QN	Ż	Q.	Q		QN		QN
Thallium	2	0.001	700		Z	QN	N		QN		QN		ND N	QN		ND		ND		QN	ND	Q		QN		ND		ND	z	ND	ON		QN		ND
Vanadinium	0.4	0.01	2,400	9.4	8	8.5	24		12		8.7		7.2 7.	7.3		9.2		8.2		11	9.7	.7		42		43		21	23	3	91		100		ND
Zinc	4	0.01	5,000	440	_	8	140		6		390	_	12 8	8		390		10		17	3,	6		25		47	_	25	'n	28	49		51		Q
ND: None Detected at Reporting Limit	at Reporting	1 limit																																	

ND: None Detected at Reporting Limit mg/kg millignansklagrams/klagram = parts per million tgl.: micrograms/klar = parts per billion Tale 22 California Code of Regulations, secton 66261,24

SOIL SAMPLE RESULTS

pH, Chlorinated Pesticides, PCBs, PAH, Oil & Grease

	21a 21ah	QN	QN	ND	ND	ND	ND	QN	ND	ND	0.058	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	87 (%)	(%) 69		ND	ND	ND	ND	QN	QN	ND	87 (%)	66 (%) 85 (%) 101 (%) DWW- DWW- DWW- DWW- DWW- DWW- DWW- DW	21a 21ah FB1 FB2			QN	ND ND ND	QN	ND ND ND		QN	96 (%) 75 (%) 75 (%)	WWW- DWWV- Lab	3
Z V	DWW- DWW- DWW DWW 20ah2 20b 20bh 21a	Q	QN	ND	ND	QN	QN.	QN	QN	QN	QN QN	QN	ND	ND	ND	ND	ND QN	QN	ND	QN QN	9	71 (%) 8			ND	ND	Q	QN.	QN	9	ND		85 (%) 11 DWW- DWW. D	0b 20bh				ND QN	QN QN	ND	Q		100 (%) 001	DWW- DWW- DWW- DWW- DWW- 20a2 20ah2 20h 20hh 21a	
ž.	20ah2 2	_	_	_	_		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_		36		_	~	_	_	_	_	_		88 DWW- DV	20ah2 2			_	_	_	_	_			20ah2 2	-
, and a	DWW- DWW- 20ah1 20a2	QN	QN	QN	QN	QN	QN	QN	QV	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	9	QN	(%) 69	11 (%)	(mg/kg)	QN	QN	9	QN	QN	QN	QN	(%)	65 (%) DWW- DWW-	Jah1 20a2	(ராழியு)		QN	QN	QN	QN	QN	QV	29 (%)	DWW- DWW-	***************************************
		QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ND	QN	QN	QN	Q	QN	187 (%)	73 (%)		QN	QN	Q	QN	QN	QN	ND	72 (%)			(mg/g)		QN	QN	QN	QN	Q	QN	61 (%)	. Dww-	-
a a a a a a a a a a a a a a a a a a a	DWW- DWW- DWW- DWW- 18a 18ah 19a 19ah 20a1	Q.	QN	ND	QN	QN	QN	QN	QN	QN	ND	QN	ND	ND	ND	ND	ND	QN	ND	Q	QN	104 (%)	20 (%)	(maka) (maka) (maka) (maka)	ND	ND	Q	QN	QN	QN	ND	(%) 98	105 (%) 98 (%) 75 (%) DWW- DWW- DWW- DWW-	19a 19ah	(mg/kg) (mg/kg)		QN	QN	ND	ND	QV	ND QN	63 (%)	DWW- DWW- DWW- DWW- DWW- 18a 18ah 19a 19ah 20a1	
Dangar	w- Dww- I		0	0	0	0	0	0	0	QN	0	0	0	0	0	D	0	0	D	0	0				D .	0	0	0	0	0	D		(%)	ia 18ah	(mgAg)		0	0	0	0	0			W- DWW- E	200
		QN	QN	ON	QN	QV	QV	QV	QN	Z	QN	QN	QN	QN	QN	ND	QN	Z	ND	Q	Z	(%) 68	(%) 09	(mg kg) (mg kg)	ND	ON	Q	QN	QN	Z	ND	92 (%)			(mg/kg) (mg/kg)		QN	QN	QN	QV	Z	QN	(%) 96		
Diana.	16b 16bh 17EB	Q.	ND	ND	ND	QN	ND QN	ND QN	QN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N ON	Q.	83 (%)	45 (%)	(maha) (maha)	ND	ND	QN	QN	QN	Q.	ND	(%) 92	107 (%) DWW- DWW- DWW-	6b 16bh	(ருந்திரு) (ருந்திற்)		ND	QN	ND	0.013	QN	ND	93 (%)	DWW- DWW- DWW- 16h 16h 17FB	200
a de la	DWW- 16ah																					83	*	(Dolgon)								32	DWW-	16ah	(mg/kgi)					0			33	DWW-	
Diam'r	15bh 16a	QN	ND	ND	ND	QN	QN	QN	QN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Q	QN	109 (%)	34 (%)	(maka) (maka)	ND	ND	QN	QN	QN	QN	ND	(%) 09	63 (%) 88 (%) DWW- DWW- DWW-	5bh 16a	(mg/kg) (mg/kg)		ND	QN	ND	0.17	QV	QN	125 (%)	15h 15hh 16a	
i i	15b 18	QN	QN	QN	Q	Q	Q	Q	Q	Q	Q	Q	QV	Q	QN	ND	QN	QV	QN	2	Q	(%) 06	35 (%)	(mg 4 ₀₂)	QN	QN	Q	QN	QV	QN	QN	22 (%)	_		(mg Ago		QN	Q	Q	Q	R	Q	104 (%)		
	N- DWW- a 15ah		0	0	0	0	_	0	0	0	_	0	0	_	0	0	0	0	0	_	_		(%	(maken)	0	(0			_	0	(%	%) w- Dww-		(mg/kg)			_	_	0	0	0	(%	W- DWW-	
	14bh2 15a	R	QN	QN	QV	QV	Q	QN	Q	QV	QN	QN	QN	QN	QN	QN	QN	QN	QN	Q	QN	S	267 (%)	(mg/kg) (mg/kg)	QN	QN	g	QV	QN	N	ND	(%) 08	98 (%) Dww- Dww-	14bh2 15	(ரூர்ற்ற (ரூர்றி	•	QN	Q	QN	Q	QN	Q	133 (%)	14hh2 15a	-
3	DWW- 14b2	QN	QN	QN	QV	QV	Q	QN	Q	QV	QV	QV	Q	QV	QN	ND	ND	Q	ND	2	QV	100 (%)	44 (%)	(matu) (matu) (matu)	ND	ND	2	QN	QN	QN	ND	(%) 69	54 (%) 65 (%) DWW- DWW- DWW-	h1 14b2	(mgt.) (mgtg)		QN	Q	QN	QV	QN	QV	105 (%)	14h2 14h1 14hh1 14hh2	
, and a	14b1 14bh1	QN	QN	ND	ND	Q	QN	QV	QN	ND	ND	ND	QN	ND	QN	ND	QN	QN	ND	Q	QN	87 (%)	35 (%)		ND	ND	Q	QN	Q	QN	ND	52 (%)			(mgk) (mg		QN	QN	QN	ND	QV	QV	(%) 66		
	w- Dww- a 14ah	0	ND	ND ON	0	QN	0	0	ND	ND	0	ND	0	0	ND	ND	ND	0)	0	0	NC	(%)	(784)	0	0	0	0	0	0)	80 (%)	%) W- DWW-		(1984) (2004)		ND	0	ND	0	0	0	(%)	W- DWW-	
ard water	13bh 14a	Q	Z	Z	QN	Z	Q	Q	Z	Z	9	Z	QV	QN	Z	Z	Z	QV	ON	QN	Q		228 (%)	(mg kg) trahg)	QN	QN	Q	2	P	Z	QN		45 (%) 60 (%) 65 (%) DWW- DWW- DWW- DWW-	13bh 1	(mg kg) (mg kg)		Z	Q	Z	QN	R		132 (%)	DWW. DWW-	
yanar Diana	13a 13ah 13b	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	QN	ON	QN	ND	ND	ND	QN	ND	QN	QN	78 (%)	20 (%)	(maka) (maka) (maka)	ND	ND	Q	QN	QN	QN	ND	52 (%)	60 (%)	13ah 13b	(mg kg) (mg kg)		QN	QN	QN	QN	QV	QN	97 (%)	13a 13ah 13h	-
		QN	QN	QN	QN	Q	Q	Q	Q	QN	0.013	QN	ND	QN	ND	ND	ND	QN	ND	Q	QN	(%) 99	35 (%)		ND	ND	Q	QN	QN	QN	ND	45 (%)	45 (%)	13a	(mgAg)		QN	Q	QN	QN	QV	QN	121 (%)		
	12b 12bh	QN	QN	ND	ND	QN	QN	ND	QN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Q	QN	(%) 69	43 (%)	(maka) (maka)	ND	ND	Q	QN	QN	QN	ND	20 (%)	51 (%) Dww- Dww-	12b 12bt	(mg kg) (mg kg)		ND	QN	QN	ND	QN	QN	98 (%)	12h 12hh	
, was	Dww- 12ah																					9	4									9	DWW-	12ah	(Day But)									DWW-	
	DWW-	Q	QN	QN	Q	Q	Q	QN	Q	Q	QN	Q	QN	QN	QN	QN	QN	QN	QN	Q	QN	S	SC	(mytha)	QN	QN	Q	QN	QN	QN	QN	27 (%)	110 (%) DW/W-		(English)		QN	Q	QN	QN	QV	353 (%)	122 (%)	DWW-	
0	Reporting Limit (soil)	0.3	0.3	0.3	0.3	0.3	9.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0			(mg/kg)	0.04	0.04	0.04	0.04	0.04	0.04	0.04		Reporting		(0.00 pc)		0.013	0.013	0.013		0.63			Reporting Limit (soil)	(100)
	Analyte CHLORINATED PESTICIDES	Aldrin	alpha-BHC	beta-BHC	A gamma-BHC (Lindane)		Chlordane	DDD-d'd	p,p:DDE	p,p:-DDT	Dieldrin	Endosulfan	Endosulfan II	Endos ulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene	Surrogate TCMX	Surrogate Decachlorobiphenyl	POLYCHLORINATED BEPHENYLS	PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248	PCB 1254	PCB 1260	Surrogate TCMX	Surrogate Decachlorobiphery/	Analyte	AKOMATC & TOTAL PURGEABLE PETROLEUM HYDROCARBONS		Benzene	Toluene	Ethylbenzene	Xylenes (Total)	Methyl tert-Butyl Ether (MTBE)	Surrogate 4-BFB (FID)	Surrogate 4-BFB (PID)	Anshas	evitary.

TPH: Total Petroleum Hydrocarbons

ND: None Detected at Reporting Limit

ND: A result could not be adroicated due to matrix interference,
mg/sg millignams/kelor are parts per million

Teleporting Limit - 10 mg/sg

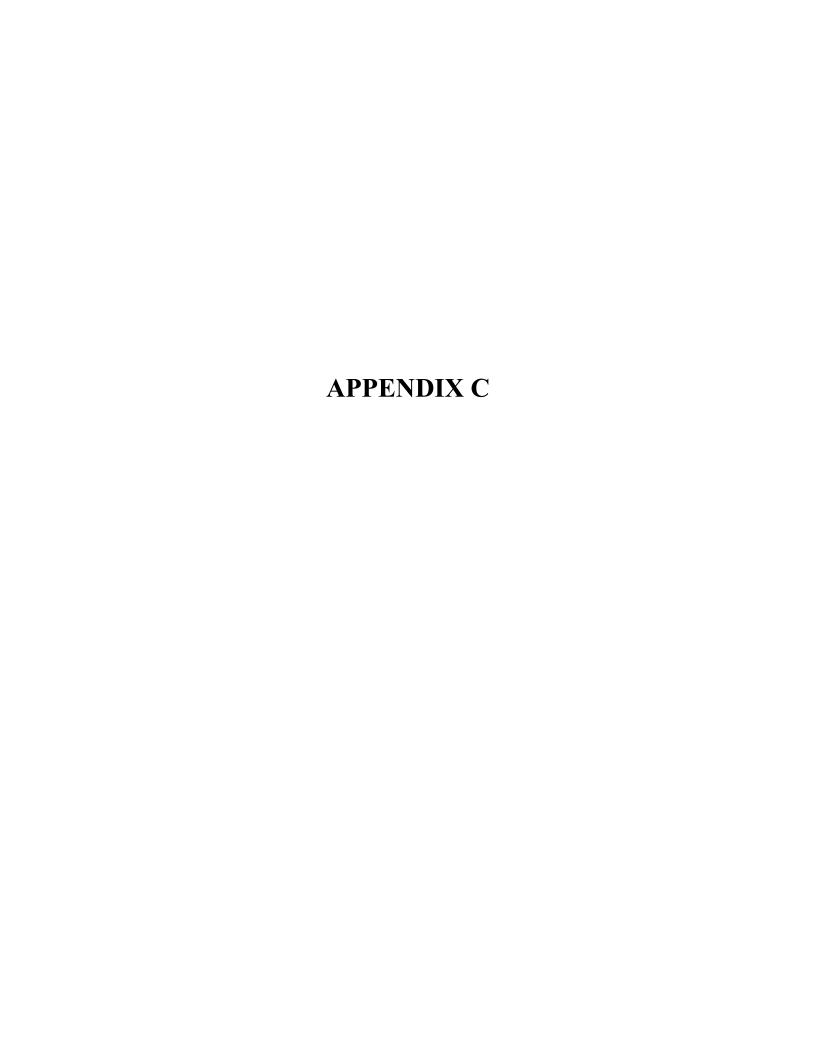
Teleporting Limit - 10 mg/sg

SOIL SAMPLE RESULTSOrganophosphorus Pesticides & Semivolitile Organic Compounds

Analyte ORGANOPHOSHDRUS PESTICIDES Chlepyprifos (Dursban) Coumaplos Demetron (0.8.5) Dazon Dichoros Dishloron (10.5/ston) Ethogrophos (Propinos) Fersulanten A Fersulanten A Fersulanten A Fersulanten A Fersulanten	Limit (soil)	DWW-12a 12ah	ah 12b 1	12ah 12b 12bh 13a 13ah 13b DWW-14a 4ah 14b1 14b1 14b1 14b1 14b1 14b1 14b1 14b	13ah 13b	13bh DWN	/WV-14a 14ah	14b1 14bh1 (maha) (maha)	J , _	(maka) (maka)	15b (ma/kg)	15bh 16a 11	16ah DWW-16b 16bh	16bh 17EB	.B 18a	18ah	19a 19ah	20a1	20ah1 20a2 20ah2	200 20p 20p	20b 20bh 21a 21ah FB1 FB2	FB1 FB2
			(Dychu)			(mg/hg)	(mg/kg)			(gy4gy)	(thyful)	(By6w)						(Eyen)	(Dyd)			
									-	5												
						,	•			S			٠			٠	٠					
	4	Q	ND	ND	QN	_	ND	ND	QN	O.	QN	QN	QN		QN		ND	Q	QN	ND	ND	
	20	QN	Q	ND	QN		ND	ND	QN	ND	Q	QN	ND		QN		ND	ND	ND	ND	ND	
Distributions Distributions Distributions Ethoprophos (Prophos) Ethoprophos (Prophos) Ferstallothon Azziphos methy (Guttion)	4	QN	ND	ND	QN	-	ND	ND	QN	ND	QN	QN	ND		QN		ND	ND	ND	ND	ND	
Dichlonos Distriboro (D-8-yaon) Ethoprophos (Prophos) Fernsufotion Fernition Azimphos methy (Guttion)	4	QN	QN	QN	QN	_	QN QN	QN	ND	QN	QN	QN	ND		QN		ND	QN	QN	QN	ND	
Disulfoton (Di-Syston) Ethoprophos (Prophos) Fensulfotrion Fenthion Azirphos methy (Guttion)	4	QN	ND	ND	QN	i i	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND	ND	ND	ND	
Ethoprophos (Prophos) Fensulfothion Fenthion Azinphos methy (Guttion)	70	QN	QN	QN	QN		ND	QN	QN	QN	QN	QN	QN		QN		ND	ND	QN	QN	QN	
Fentuion Fenthion Azinphos methy (Guthion)	20	QN	QN	QN	ΩN		ND	QN	ND	QN	QN	QN	QN		QN		ND	QN	QN	QN	QN	
Fenthion Azinphos methy (Guthion)	10	QN	QN	QN	QN		ND ON	QN	ND	QN	QN	QN	QN		QN		ND	QN	QN	QN	ND	
Azinphos methy (Guthion)	4	Q	QN	QN	QV		ND	QN	QN	QN	QN	QN	QN		Q		ND	QN	QN	QN	QN	
	20	QN	QN	QN	QN		QN	QN	ND	ND	QN	ND	QN		QN		ND	QN	QN	QN	ND	
Merphos	8	QN	QN	QN	QN		ND	QN	QN	QN	QN	QN	QN		QN		ND	QN	QN	QN	QN	
Parathion methyl	02	QV	QN	QN	QN		ND ON	QN	QN	QN	QN	QN	QN		QV		ND	QN	QN	QN	QN	
Naled (Dibrom)	02	QN	QN	QN	QN		ND ON	QN	QN	QN	QN	QN	QN		QN		ND	QN	QN	QN	QN	
Phorate (Thirnet)	4	Q	QN	QN	QV		QN	ND	QN	QN	QN	QV	QN		QN		QN	QN	QN	QN	QN	
Mevinphos (Phosdrin)	20	Q	QN	QN	QV		QN	ND	QN	QN	QN	QV	QN		QN		ND	QN	QN	QN	QN	
Ronnel (Fenchlorophos)	4	Q	QN	QN	QV		QN	ND	QN	QN	QN	QV	QN		QN		ND	QN	QN	QN	QN	
Bolstar (Sulprofos)	10	Q	Q	QV	QN		ND	Q	QN	QN	Q	Q	QN		QN		ND	QN	QN	QN	QN	
Stirophos (Tetrachlorvinphos)	4	QN	QV	QN	QN		QN	ND	QN	ND	QV	QN	QN		QN		ND	QN	QN	QN	QN	
Tokuthion (Prothiofos)	4	QN	QN	QN	QN		ND	QN	QN	QN	QN	QN	QN		QN		ND	QN	QN	QN	QN	
Trichloronate	10	QN	Q	QN	QN		ND	ND	QN	ND	Q	QN	QN		QN		ND	ND	ON	QN	QN	
Surrogate-Tributy/phosphate		75 (%)	54 (%)	83 (%)	NC		NC	NC	106 (%)	NC	NC	NC	NC		77 (%)		NC	226 (%)	140 (%)	83 (%)	NC	
Surrogate-Triphenylphosphate		(%) 96	49 (%)	127 (%)	(%) 99		553 (%)	(%) 1.05	132 (%)	519 (%)	231 (%)	254 (%)	236 (%)		109 (%)	#	175 (%)	184 (%)	181 (%)	123 (%)	147 (%)	
Analyte L	Reporting Limit (soil)	DWW-12a 12ai	W. DWW- E	-	Dww- Dww 13ah 13b	- DWW- 13bh DW	Dww. W-14a 14ah	_	14b2	_	DWW- 15b	. Dww-	. 🖆	_	_	DWW- D	19a 19ah	20a1	DWW- DWW- DWW- 20ah1 20a2 20ah2	M- DWW- DWW-	Dww- 21a	DWW-DWW-DWW- 21ah FB1 FB2
O SCINI I COMPOS CINAS GO EL ILEA LOVIMEN	(mg/kg)	(Bylan) (Bylan)	(m 0)(0)	(ByBu) (ByBu)	(ByBu) (ByBu)	(mBy/Bu)	(mg/kg) (mg/kg)	(ത്രുബ) (ആളവ)	(மூர்ம்) (மர்ம்) (மர்ம்)	(048kg)	(mg/kg)		(നൂർയ) (നൂർയ)	(mg/gm) (ga/gm)	(mg/gill)		(mg/gm) (mg/gm)	ത്രൂർഡ ത്രൂർഡ	(By 6			
Acenaphtene	20	2	2	2	QV	_	QN	Q	QN	Q	2	Q	2	_	2		QN	Q	Q	2	QN	
Acenaphthylene	20	Q	Q	QN	QN		QN	Q	QN	QN	Q	Q	QN		Q		ND	QN	QN	QN	QN	
Anthracene	20	Q	QN	QN	QN		QN	QN	QN	ND	QN	QN	QN		QN		ND	QN	QN	QN	QN	
Benzo(a)anthracene	20	QN	QN	QN	QN		ND	QN	QN	ND	QN	QN	QN		QN		ND	ND	QN	QN	QN	
Benzo(b)fluoranthene	90	QN	QN	ND	QN		ND	ND	QN	QN	QN	QN	QN		ND		ND	ND	ND	ND	ND	
Benzo(k)fluoranthene	20	QN	ND	ND	QN	1	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND	ND	ND	ND	
Benzo(ghi)perylene	20	QN	ND	ND	QN	1	ND	ND	QN	ND	ND	ND	ND		ND		ND	ND	ND	ND	ND	
Benzo(a)pyrene	90	QN	ND	ND	QN		ND	ND	ND	ND	ND	ND	ND		ND		ND	ND	ND	ND	ND	
Chrysene	20	QN	QN	ND	QN		ND	ND	ND	ND	Q	QN	QN		QN		ND	ND	ND	ND	ND	
Diberrzo(a,h)anthracene	20	Q	Q	QN	Q		QN QN	ND	QN	QN	QN	QN	QN		2		ND	Q	QN	ND	ND	
Fluoranthene	20	Q	ND	ND	Q		ND	ND	QN	QV	QN	QV	QN		QV		ND	Q	QN	ND	Q	
Fluorene	20	QN	QN	ND	QN	,	ND	ND	QN	ND	QN	QN	ND		QN		ND	ND	ND	ND	ND	
Indeno(1,2,3-cd)pyrene	20	QN	ND	ND	QN	1	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND	ND	ND	ND	
Napthalene	20	QN	ND	ND	QN	1	ND	ND	ND	ND	ND	ND	0.45		ND		ND	ND	ND	ND	ND	
Phenanthrene	20	QN	ND	ND	QN	1	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND	ND	ND	ND	
Pyrene	90	QN	QN	QN	QN		ND	ND	QN	ND	Q	QN	ND		QN		ND	ON	ND	ND	QN	
Surrogate Nitrobenzene-d5		86 (%)	89 (%)	97 (%)	(%) 96		104 (%)	98 (%)	86 (%)	86 (%)	(%) 06	112 (%)	116 (%)		86 (%)	6	92 (%)	83 (%)	76 (%)	80 (%)	6%) 06	
Surrogate 2-Fuorobiphenyl		109 (%)	(%) 06	105 (%)	(%) 98			113 (%)	97 (%)	87 (%)	(%) 06	124 (%)	115 (%)		86 (%)	6	(%) 66	112 (%)	108 (%)	71 (%)	(%) 68	
Surrogate Terphenyl-d14		115 (%)	100 (%)	160 (%)	(%) 66			170 (%)	141 (%)	16 (%)	107 (%)	80 (%)	83 (%)		20 (%)	6	(%) 06	161 (%)	164 (%)	(%) 89	(%) 68	
Surrogate 2-Fuorophenol		71 (%)	75 (%)	80 (%)	73 (%)			(%) 62	72 (%)	(%) 29	71 (%)	92 (%)	84 (%)		20 (%)	7	76 (%)	83 (%)	78 (%)	(%) 59	73 (%)	
Surrogate Phenol-d6		(%) 98	87 (%)	94 (%)	(%) 98			94 (%)	80 (%)	77 (%)	82 (%)	107 (%)	(%) 06		84 (%)	6	(%) 06	97 (%)	93 (%)	75 (%)	84 (%)	
Surrogate 2,4,6-Tribromophenol		54 (%)	87 (%)	(%) 69	92 (%)		92 (%)	(%) 98	91 (%)	67 (%)	75 (%)	76 (%)	112 (%)		(%) 06	=	103 (%)	82 (%)	(%) 06	77 (%)	85 (%)	

TPH. Total Petroleum Hydrocarbons

ND: Neon Elected at Regording Limit
NC. A result could not be calculated due to matrix interference, mg/kg; milligrams/kilogram = parts per million
1gs1. micrograms/liter = parts per billion
"Reporting Limit - 10 mg/kg



Soil sample analytical results consist of approximately 300 pages. A copy of the results will be provided upon request.